

How to change front coil springs on BMW E60 – replacement guide

 VIDEO TUTORIAL

Important!

This replacement procedure can be used for:
BMW 5 (E60) 525 d

The steps may slightly vary depending on the car design.



REPLACEMENT: COIL SPRINGS – BMW E60. LIST OF THE TOOLS YOU'LL NEED:



- Wire brush
- WD-40 spray
- Brake cleaner
- Copper grease
- Combination spanner #10
- Combination spanner #16
- Combination spanner #18
- Combination spanner #21
- Drive socket # 10
- Drive socket # 13
- Drive socket # 16
- Drive socket # 18
- Drive socket # 21
- Drive socket # 22
- Torx bit T30
- Torx bit T40
- HEX bit no.H6.
- HEX bit no.H7.
- Wheel impact socket #17
- Ratchet wrench
- Torque wrench
- Flat chisel
- Hammer
- Tap wrench
- Clip removal tool
- Phillips screwdriver
- Crow bar
- Ball joint puller
- Hydraulic strut spring compressor
- Hydraulic transmission jack
- Fender cover
- Wheel chock



Replacement: coil springs – BMW E60. AUTODOC experts recommend:

- Both coil springs of the front suspension should be replaced simultaneously.
- The replacement procedure is identical for the left and right coil springs of the front suspension.
- All work should be done with the engine stopped.

REPLACEMENT: COIL SPRINGS – BMW E60. RECOMMENDED SEQUENCE OF STEPS:

1



Open the bonnet.

2



Use a fender protection cover to prevent damaging paintwork and plastic parts of the car.

3



Unscrew the fasteners of the suspension strut mount cover. Use a Phillips screwdriver. Use a clip removal tool.



4



Remove the protective cap from the shock absorber strut mount.

5



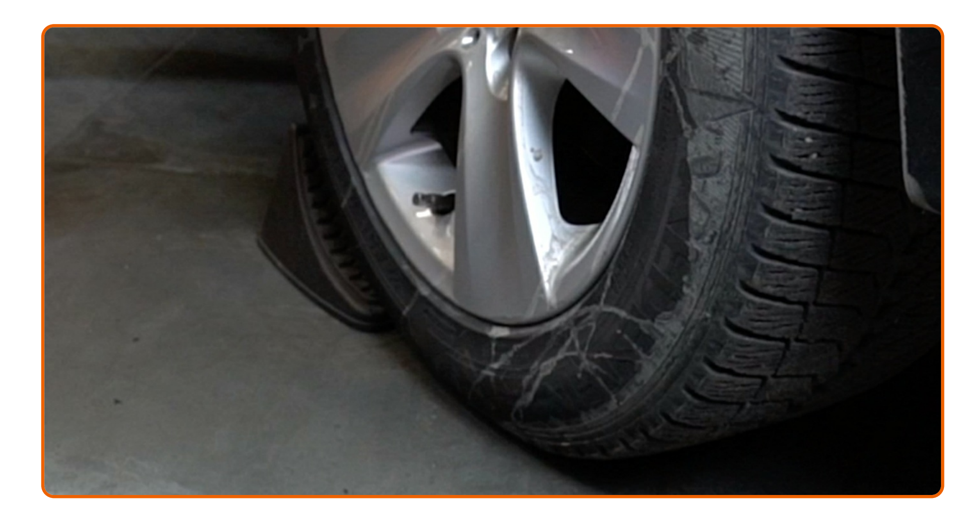
Clean the fasteners of the shock strut upper mount. Use a wire brush. Use WD-40 spray.

6



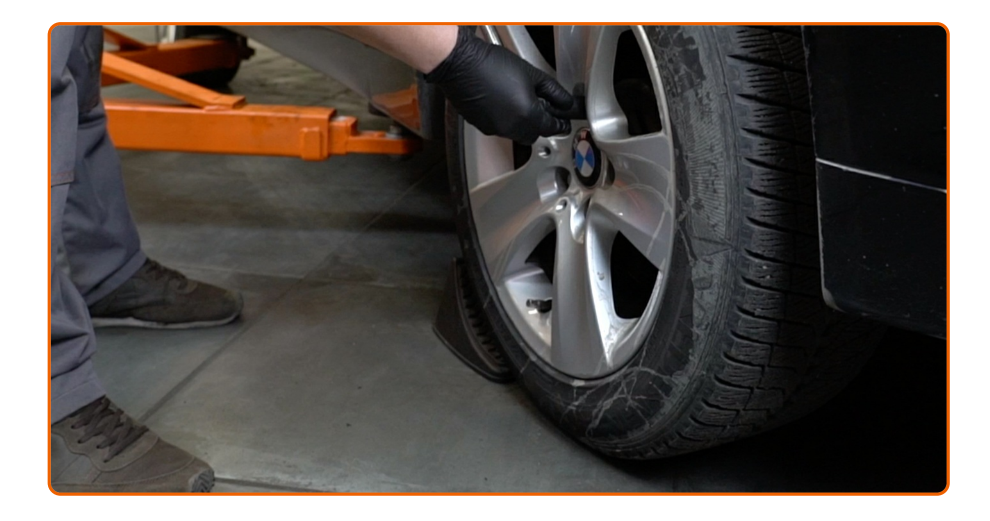
Loosen the upper fastener of the shock strut mount. Use a drive socket #13. Use a ratchet wrench.

7



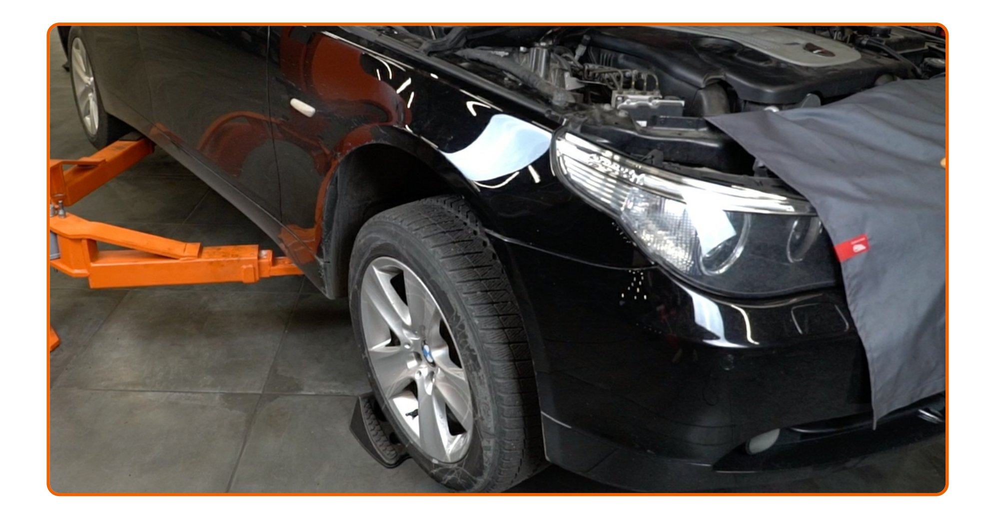
Secure the wheels with chocks.

8



Loosen the wheel mounting bolts. Use wheel impact socket #17.

9



Raise the front of the car and secure on supports.

10



Unscrew the wheel bolts.

AUTODOC recommends:

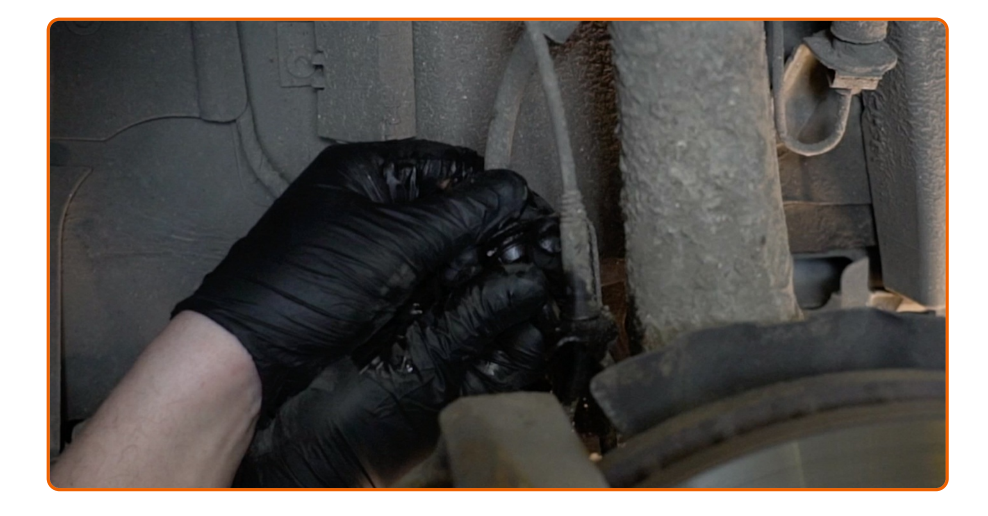
- Warning! To avoid injury, hold the wheel while unscrewing the fastening bolts. BMW E60

11



Remove the wheel.

12



Disconnect the wiring and the brake hose from the bracket on the shock strut.

13



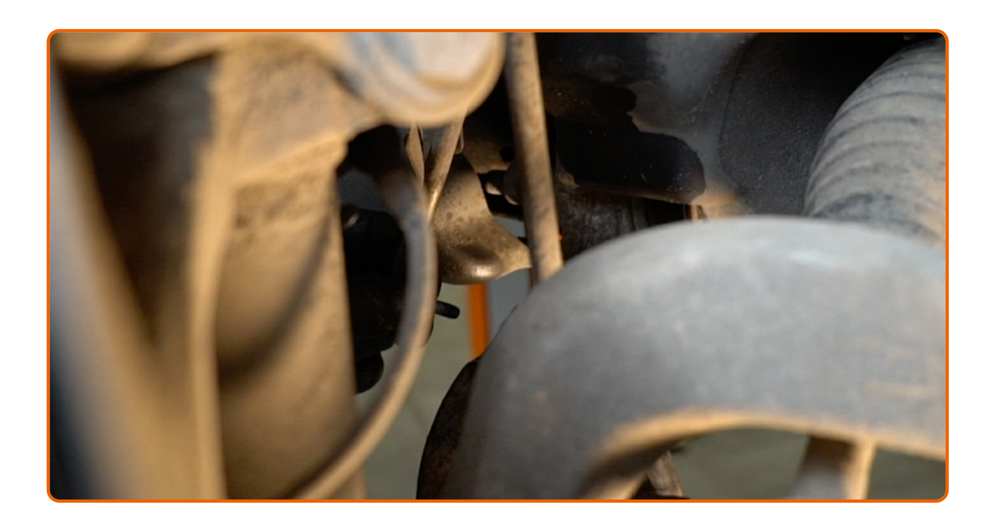
Clean the fasteners of the headlight levelling sensor. Use a wire brush. Use WD-40 spray.

14



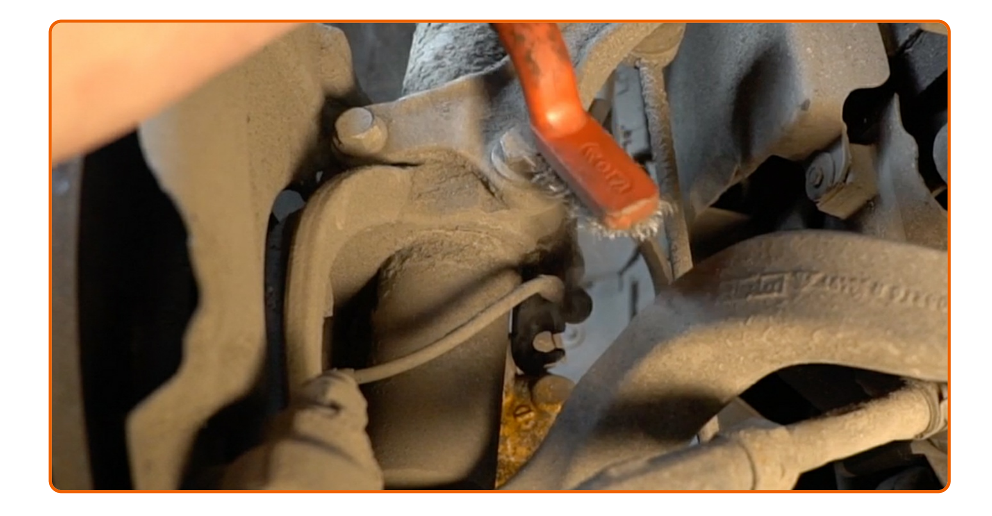
Unscrew the fasteners of the headlight levelling sensor. Use a combination spanner #10.

15



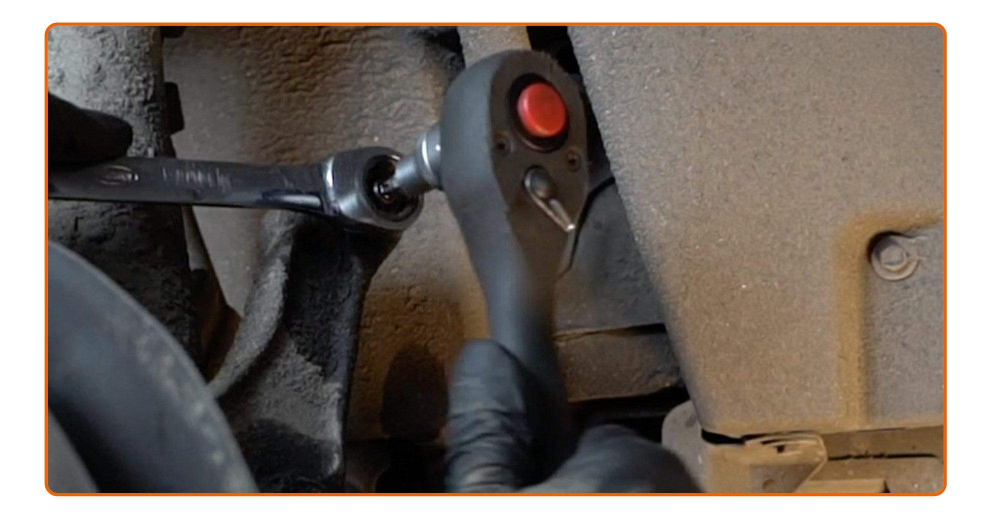
Disconnect the headlight levelling sensor.

16



Clean the fasteners connecting the shock strut to the steering knuckle. Clean the stabiliser link fasteners. Use a wire brush. Use WD-40 spray.

17



Unscrew the fastener connecting the stabilizer link to the shock strut. Use a combination spanner #16. Use Torx T30. Use a ratchet wrench.

18



Remove the stabilizer rod.

19



Unscrew the fastener of the stabiliser link bracket. Use a drive socket #16. Use a ratchet wrench.

20



Unscrew the lower fastener connecting the shock strut to the steering knuckle. Use a combination spanner #18. Use a drive socket #18. Use a ratchet wrench.

21

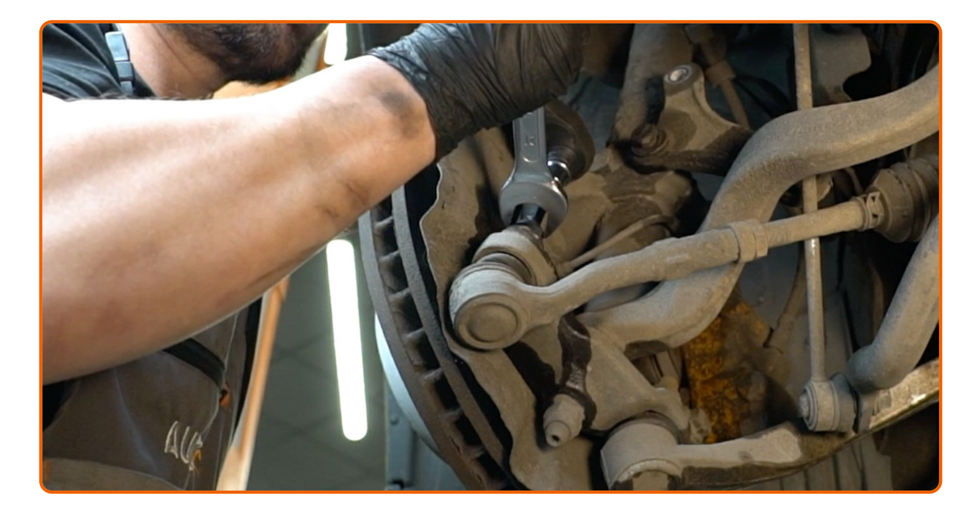
Clean the fastener connecting the tie rod end to the steering knuckle.

22



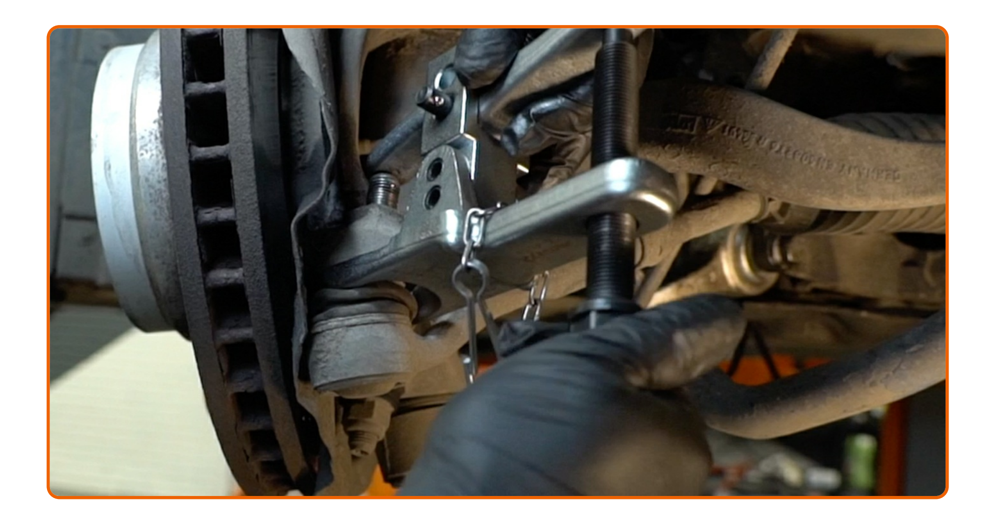
Clean all joints of the arm. Use a wire brush. Use WD-40 spray.

23



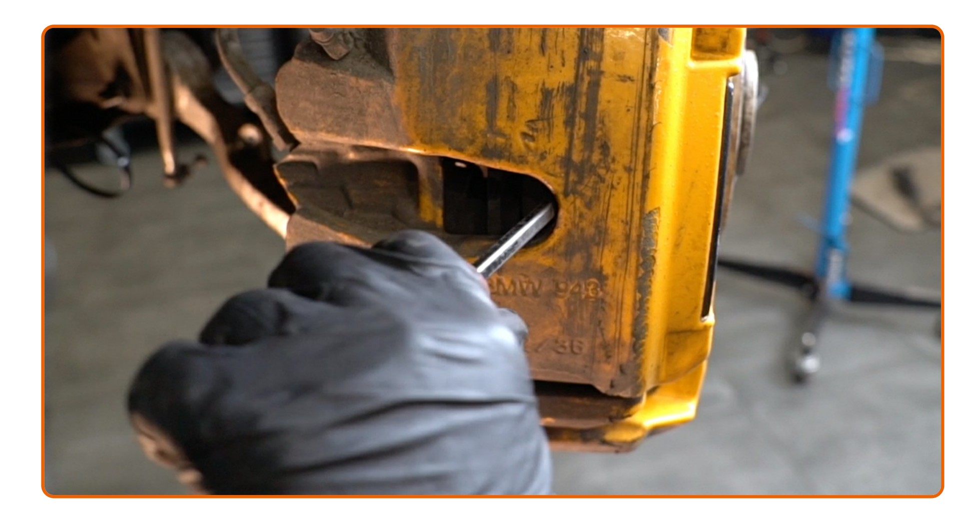
Unscrew the end fastening nut to the steering knuckle. Use a combination spanner #21. Use Torx T40. Use a ratchet wrench.

24



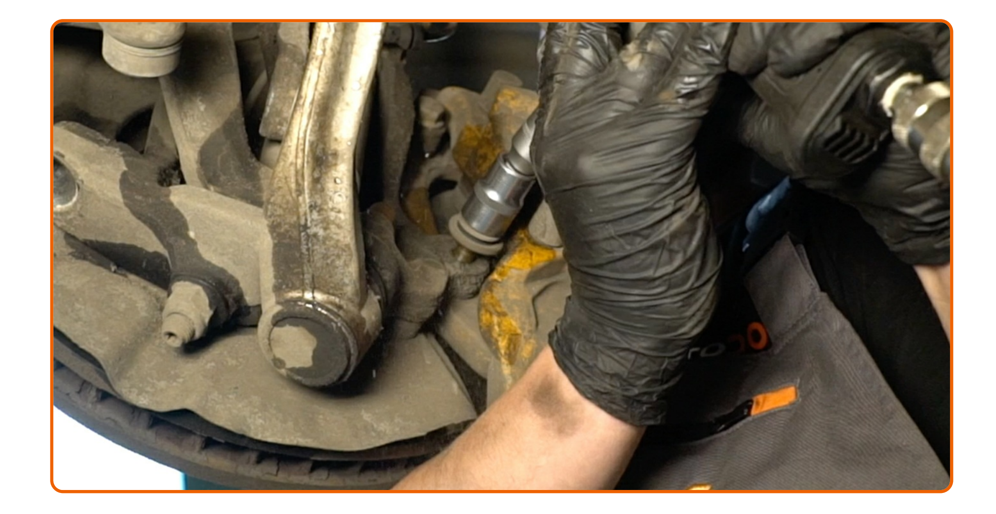
Disconnect the tie rod end from the steering knuckle. Use a ball joint puller.

25



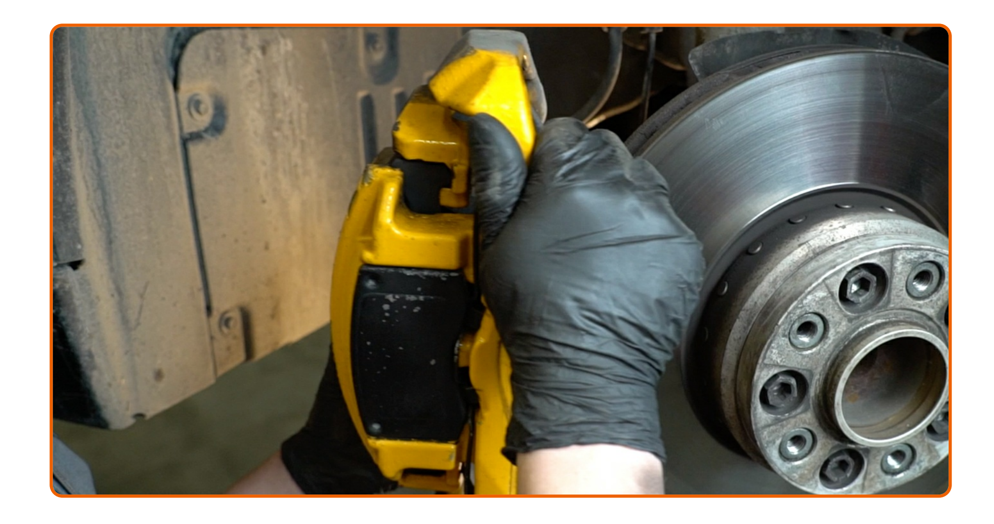
Spread the brake pads. Use a crowbar.

26



Unscrew the caliper bracket fastening. Use a drive socket #18. Use a tap wrench.

27

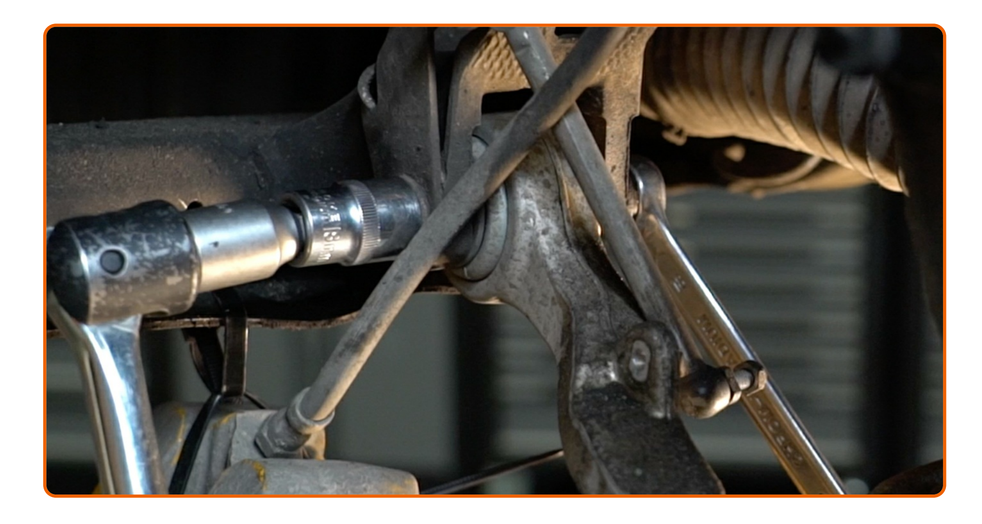


Remove the brake caliper together with its bracket.

Replacement: coil springs – BMW E60. Professionals recommend:

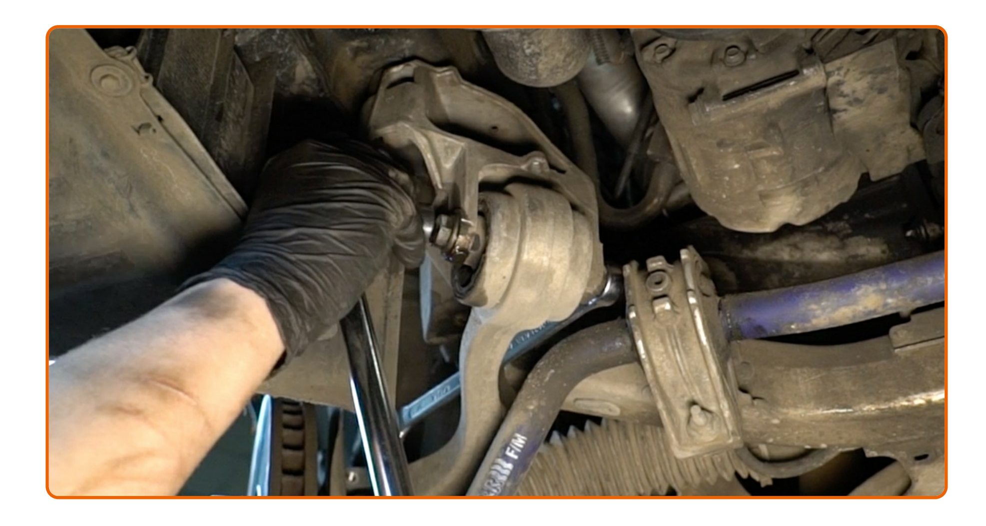
- Tie the caliper to the suspension or to the body with a wire without disconnecting from the brake hose to prevent depressurization of the brake system.
- Make sure that the brake caliper is not hanging on the brake hose.
- Don't press the brake pedal after the brake caliper has been removed. As a result, the piston can fall out from the brake cylinder, and brake fluid leakage and depressurization of the system may occur.

28



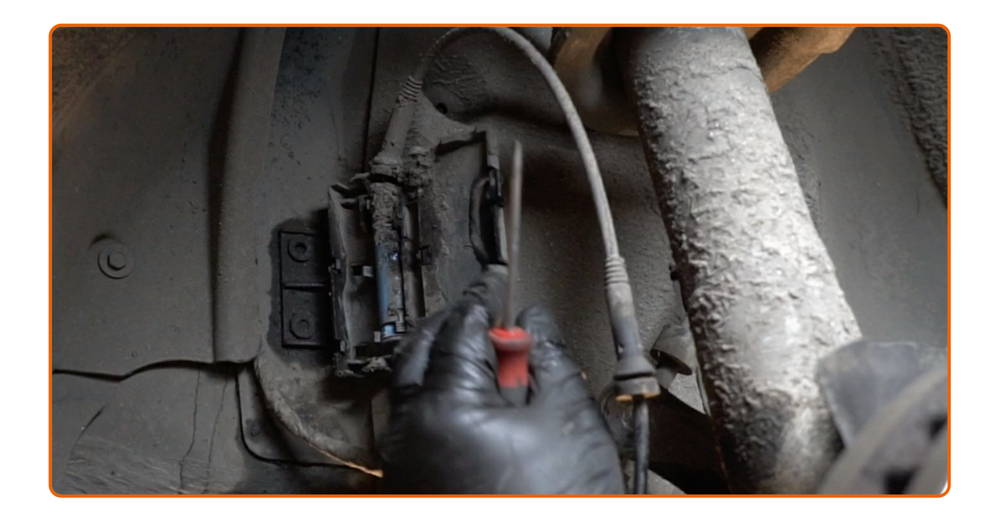
Unscrew the rear fastener connecting the control arm to the subframe. Use a combination spanner #18. Use a drive socket #18. Use a ratchet wrench.

29



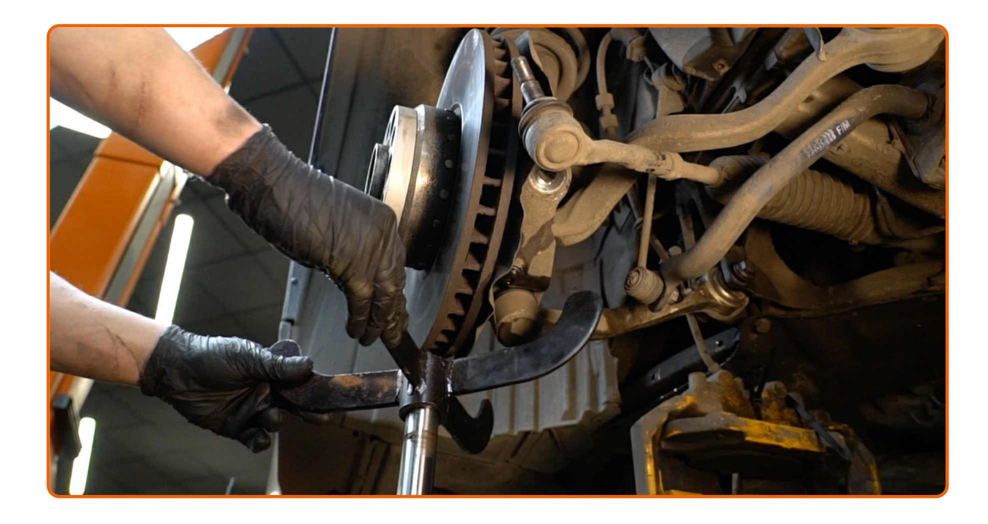
Unscrew the front arm fastener. Use a combination spanner #18. Use a drive socket #18. Use a ratchet wrench.

30



Disconnect the ABS sensor wiring.

31



Prop up the steering knuckle. Use a hydraulic transmission jack.

32



Remove the rear fastener of the control arm. Use a combination spanner #18.

33



Remove the arm.

34



Remove the front fastener of the control arm. Use a combination spanner #18.

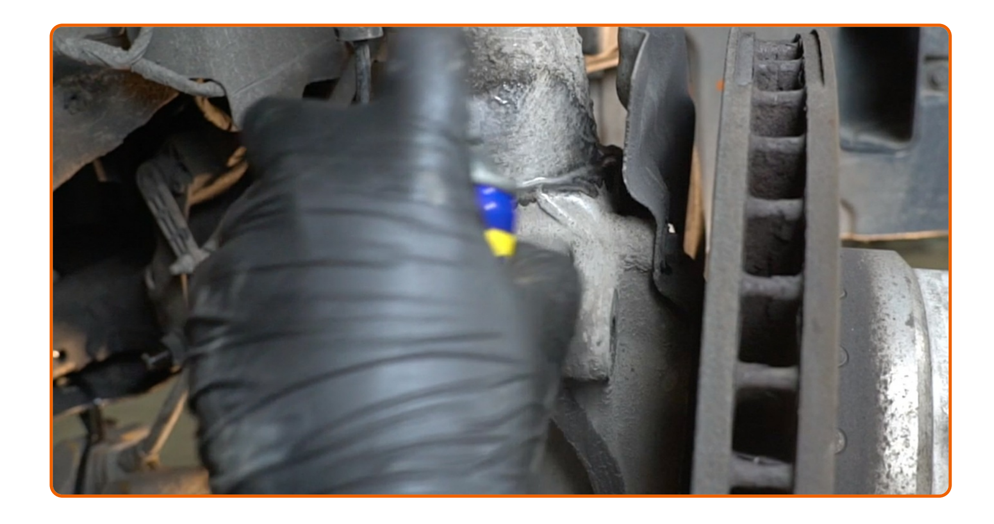
35



Remove the arm.

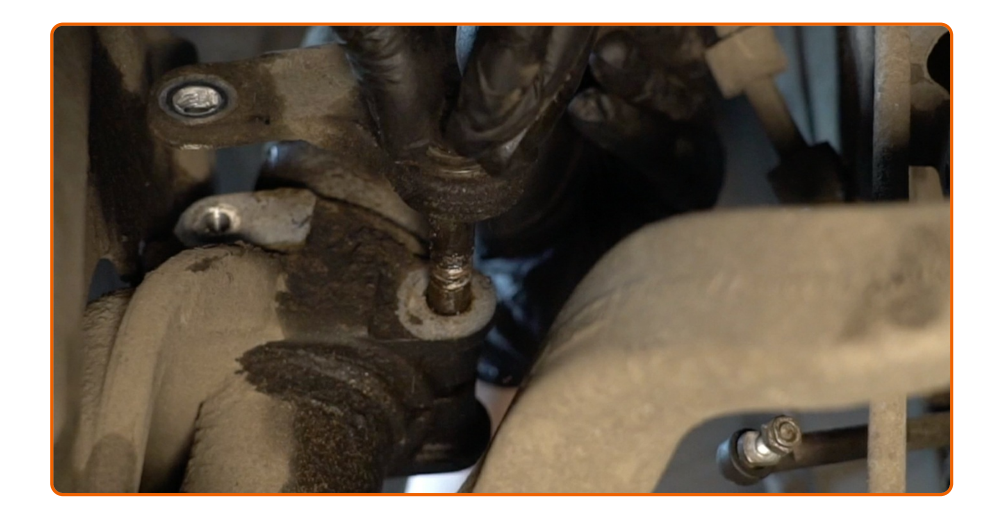


36



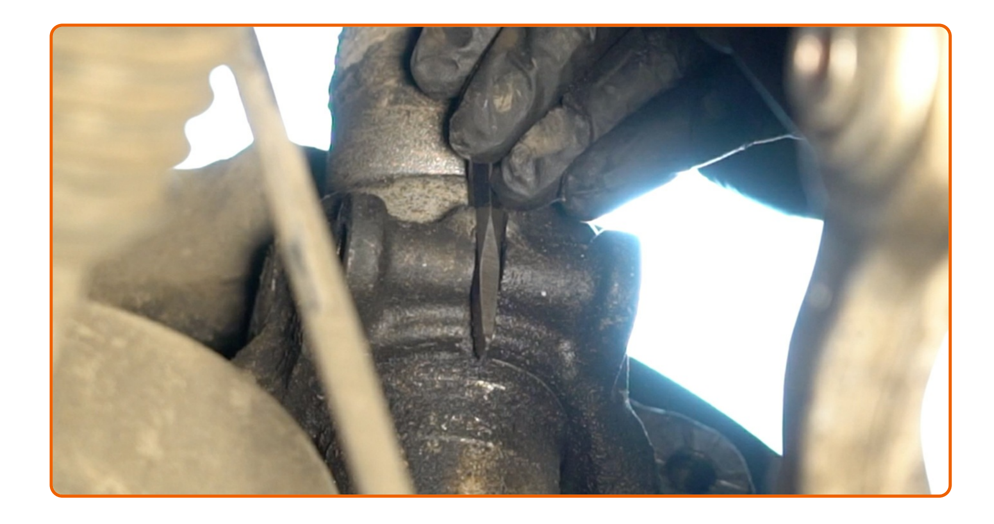
Clean the fasteners connecting the shock strut to the steering knuckle. Use a wire brush. Use WD-40 spray.

37



Remove the fastening bolt.

38



Release the lower fastener connecting the shock strut to the steering knuckle. Use a flat metal-working chisel. Use a hammer.

39

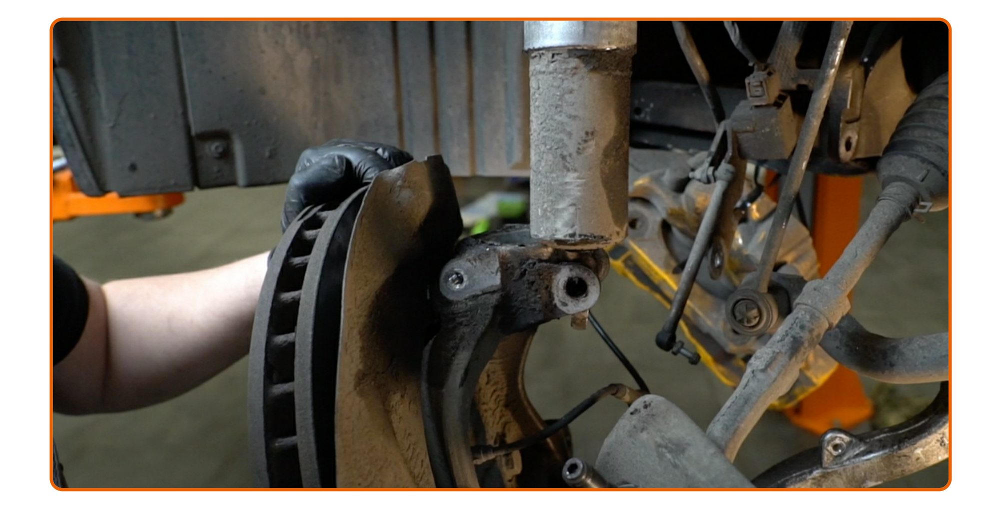


Lower the hydraulic transmission jack by 10-15 cm.

AUTODOC recommends:

- Replacement: coil springs – BMW E60. Lower the transmission jack smoothly, without jerks, to avoid damaging components and mechanisms.

40

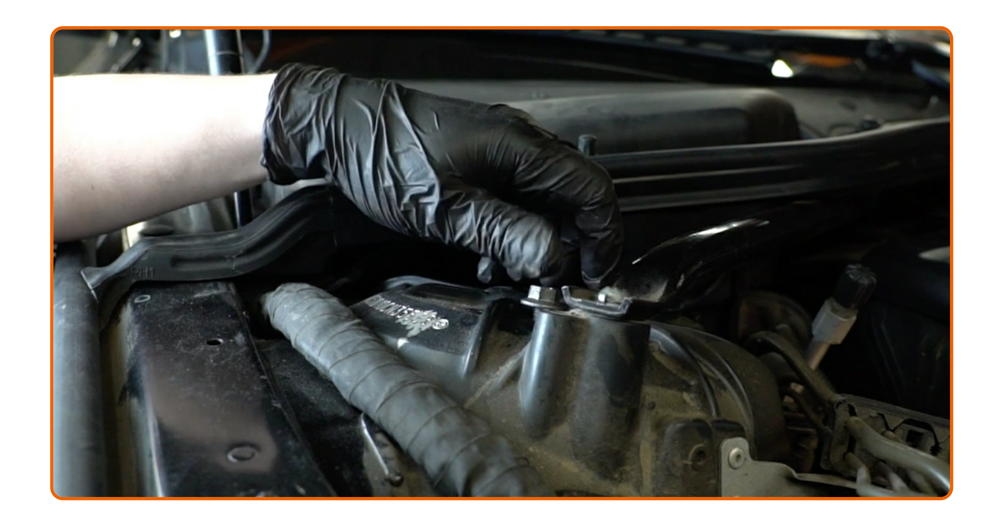


Disconnect the steering knuckle from the shock absorber strut.

Replacement: coil springs – BMW E60. Tip from AUTODOC:

- Make sure that the steering knuckle is supported.

41



Unscrew the top fastening of the shock strut mount.

AUTODOC recommends:

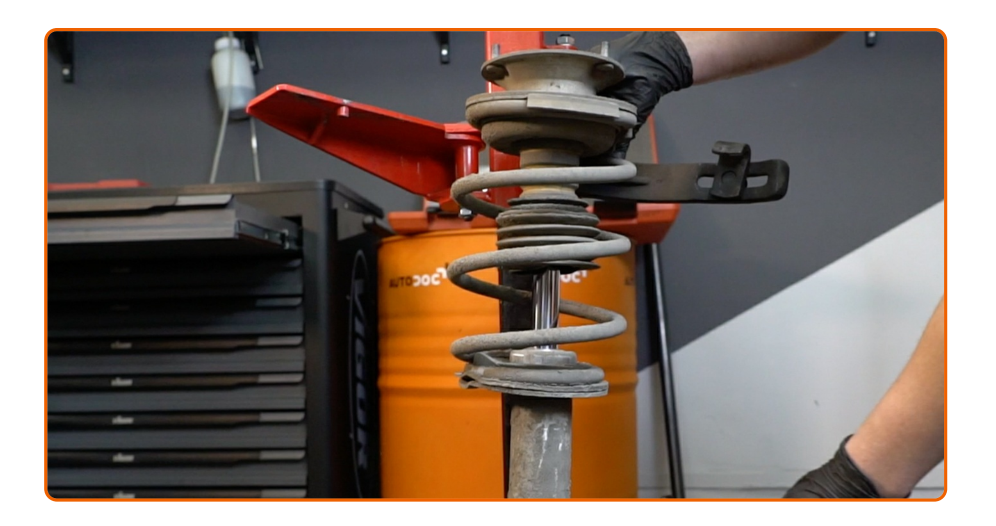
- Important! Hold the suspension strut while unscrewing the fastening bolts. BMW E60

42



Remove the suspension strut.

43



Set the shock absorber strut on the spring compressor tool.

Replacement: coil springs – BMW E60. Tip:

- Note that when using a spring compressor, spring coils need to be securely gripped, compressing the spring on the opposite sides.
- Ensure the correct position of the spring in the retainer.
- Make sure that the spring coils tightly entered the lock handles.

44



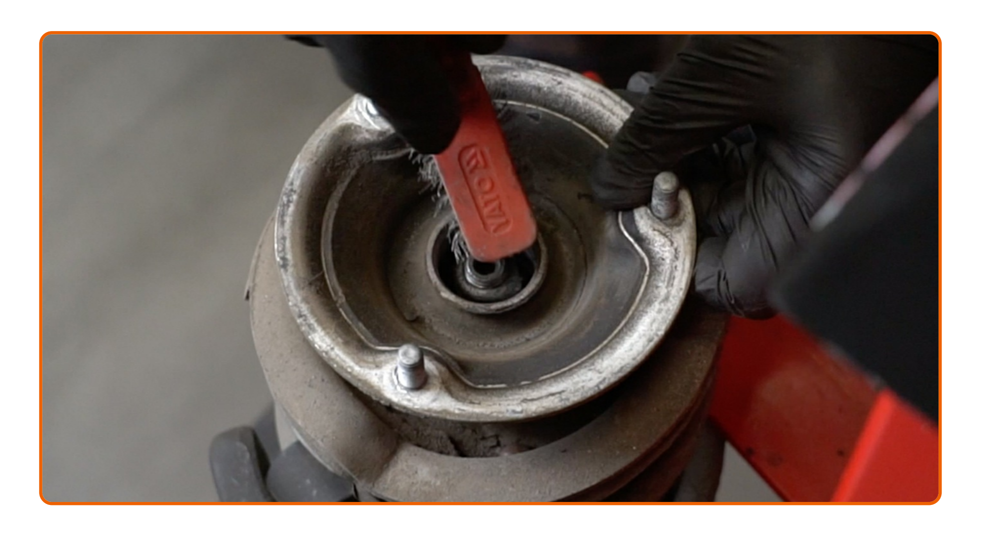
Compress the spring.

45



Remove the shock strut mount cap. Use a crowbar.

46



Treat the shock strut rod. Use a wire brush. Use WD-40 spray.

47



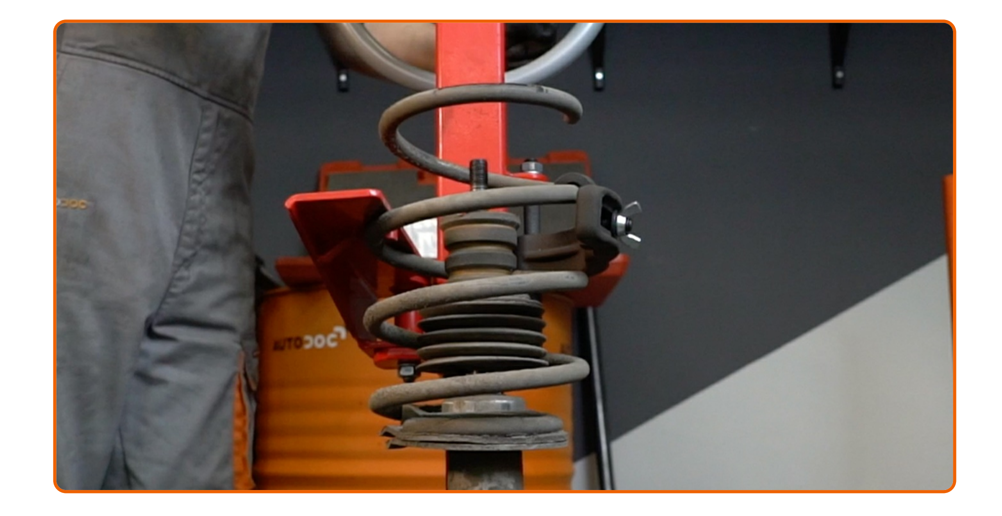
Remove the strut piston rod nut. Use a drive socket #21. Use HEX No.H7. Use a ratchet wrench.

48



Remove the top strut mount.

49



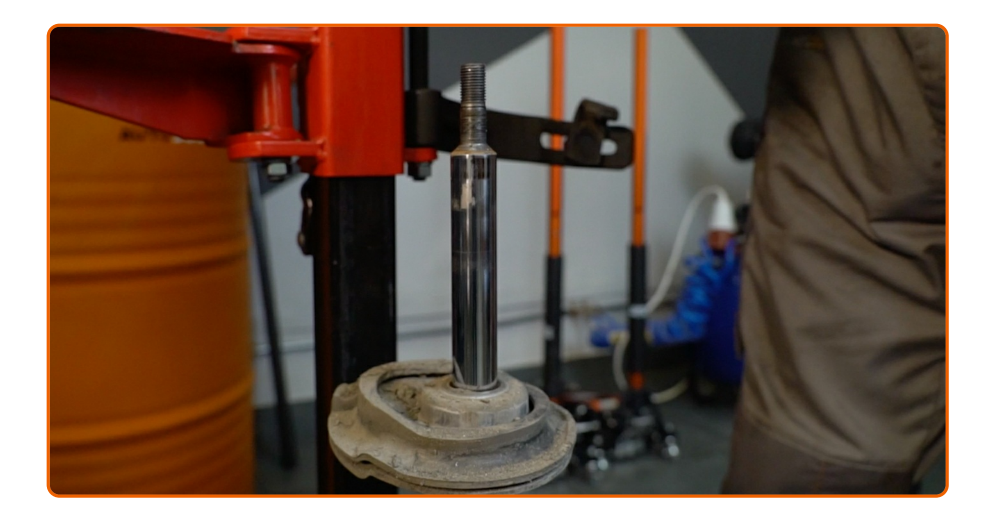
Release the coil spring.

50



Remove the spring.

51



Remove the shock absorber dust cap and the bump stop.

AUTODOC recommends:

- Replacement: coil springs – BMW E60. Carefully inspect the mount, the boot, and the bump stop of the shock absorber. Replace if necessary.

52



Install the boot and a bump stop onto the shock absorber.

53



Install the spring on the shock absorber.

54



Compress the spring.

55



Install the upper strut mount and the strut mount bearing.

56



Tighten the shock strut piston rod nut. Use a drive socket #22. Use HEX No.H6. Use a torque wrench. Tighten it to 60 Nm torque.

Replacement: coil springs – BMW E60. AUTODOC recommends:

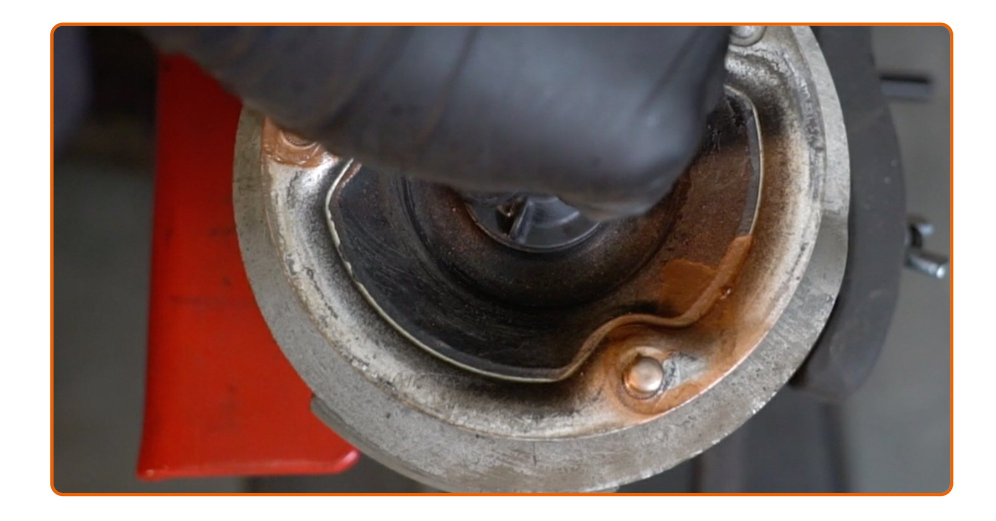
- Check to make sure the spring is positioned correctly. Avoid its misalignment.

57



Treat the shock strut rod. Use copper grease.

58



Install the shock strut mount cap.



59



Decompress the spring.

60



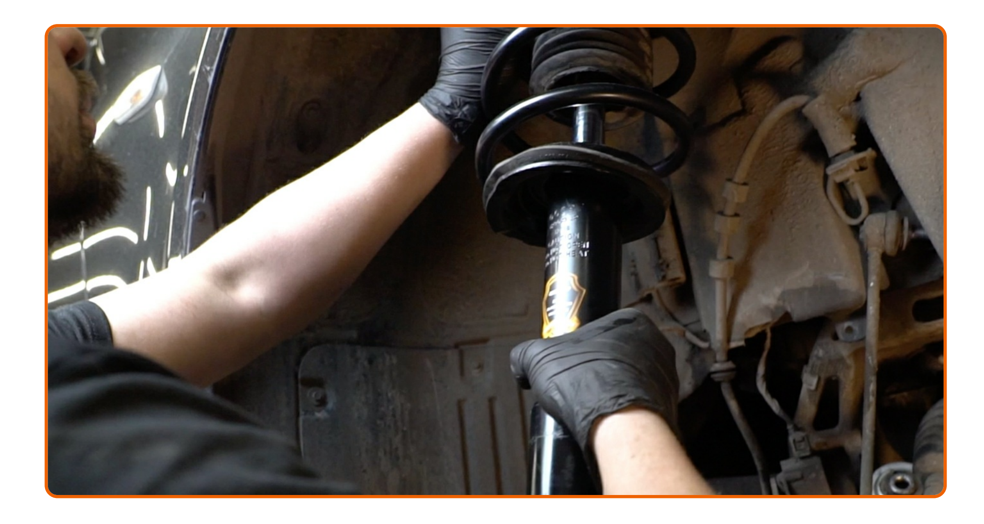
Remove the assembled shock strut.

61



Treat the shock strut mounting seat on the steering knuckle. Use a wire brush. Use WD-40 spray.

62



Install the shock strut into the wheel arch.



63

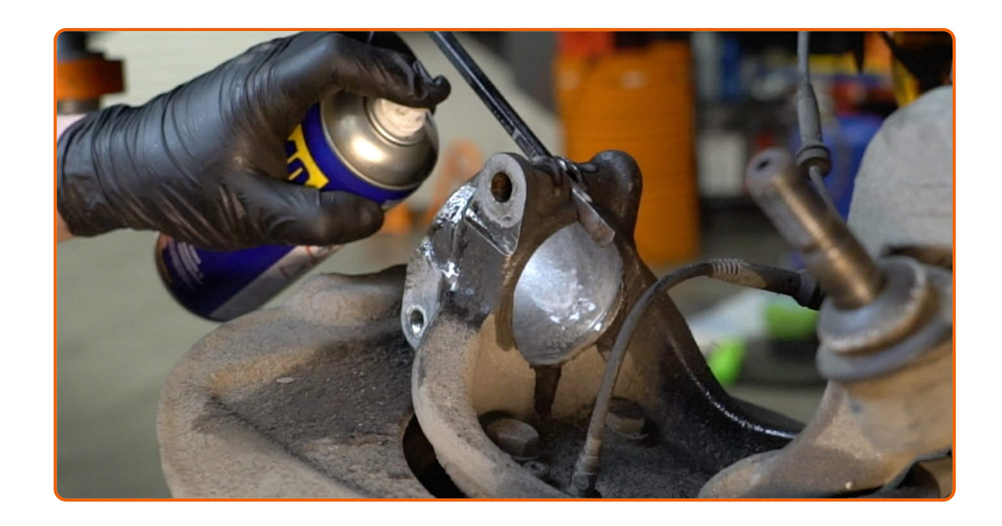


Screw the top fastening of the shock strut mount. Do not tighten it.

AUTODOC recommends:

- BMW E60 – To avoid injury, hold the suspension strut while screwing in the fastening bolts.

64



Treat the shock strut mounting seat on the steering knuckle. Use a wire brush. Use WD-40 spray.



65



Fix the shock absorber strut on the steering knuckle.

66



Install the fastening bolt.

67



Screw in the fastener of the stabiliser link bracket. Use a drive socket #16. Use a ratchet wrench.

68



Screw in the fastener that connects the shock strut to the steering knuckle. Use a drive socket #18. Use a ratchet wrench.

69



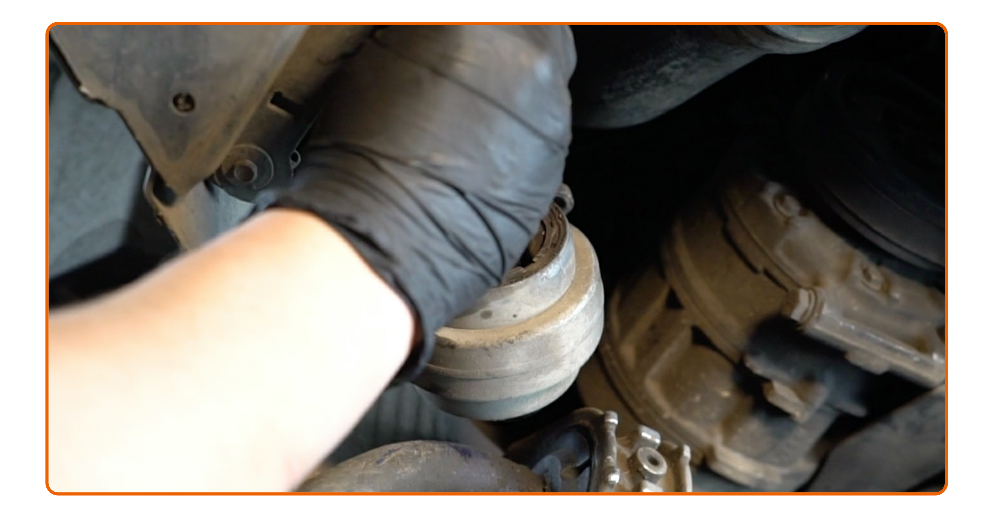
Clean the mounting seats and the thread of the suspension arm. Use a wire brush. Use WD-40 spray.

70



Reinstall the control arm.

71



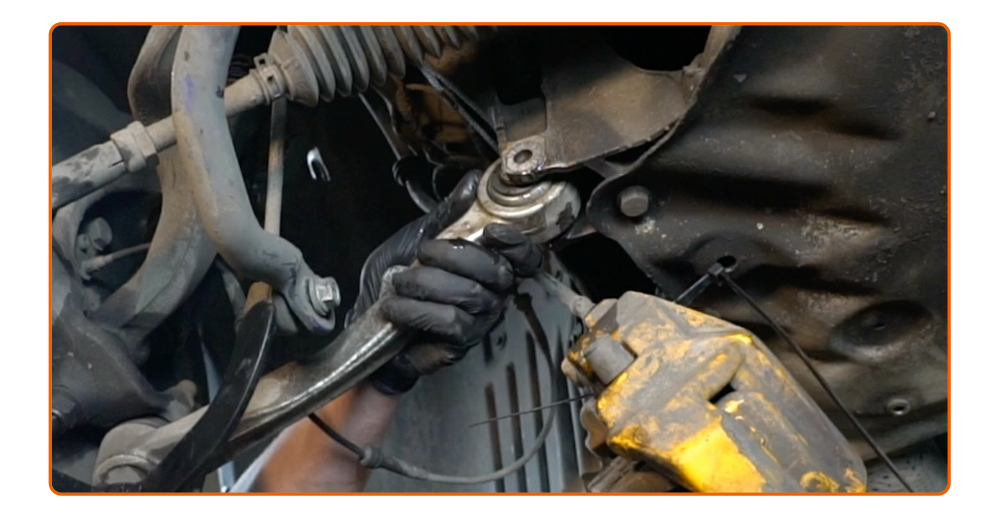
Install the front fastener of the arm.

72



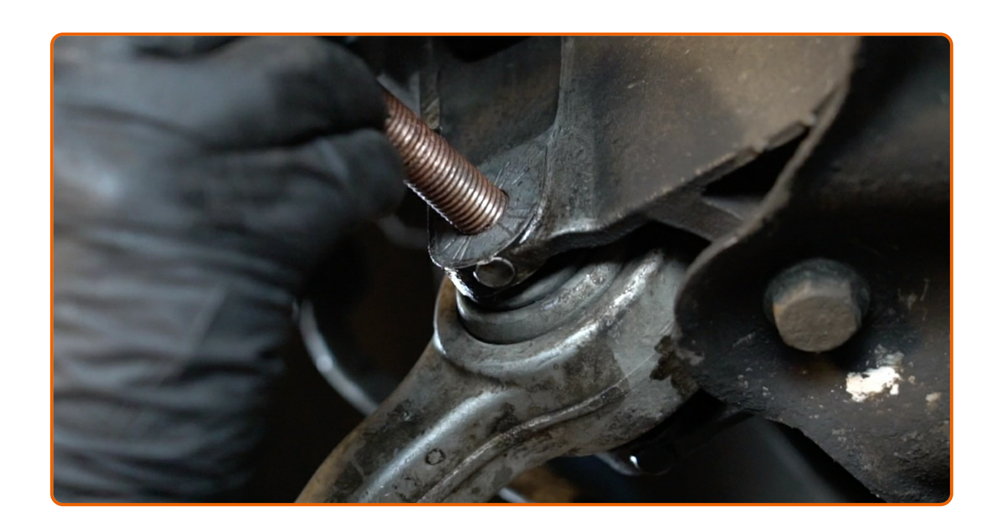
Screw the front arm fastener. Use a combination spanner #18. Use a drive socket #18. Use a ratchet wrench.

73



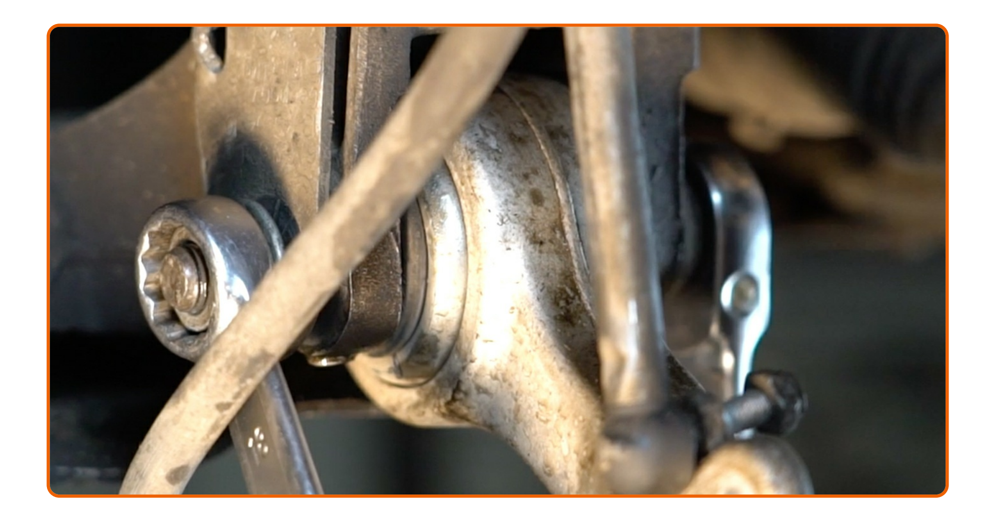
Reinstall the control arm.

74



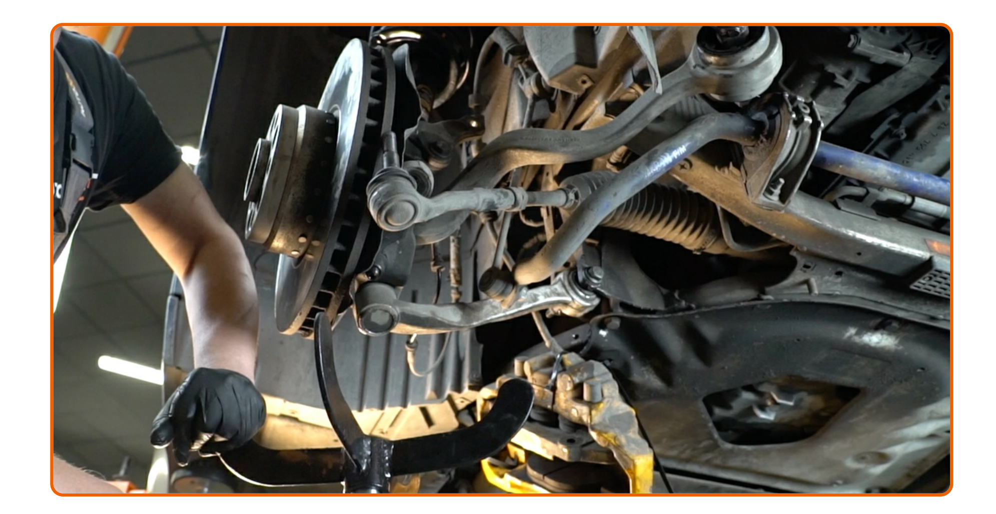
Install the rear fastener of the arm.

75



Screw the rear fastener connecting the control arm to the subframe. Use a combination spanner #18 (2 pieces).

76



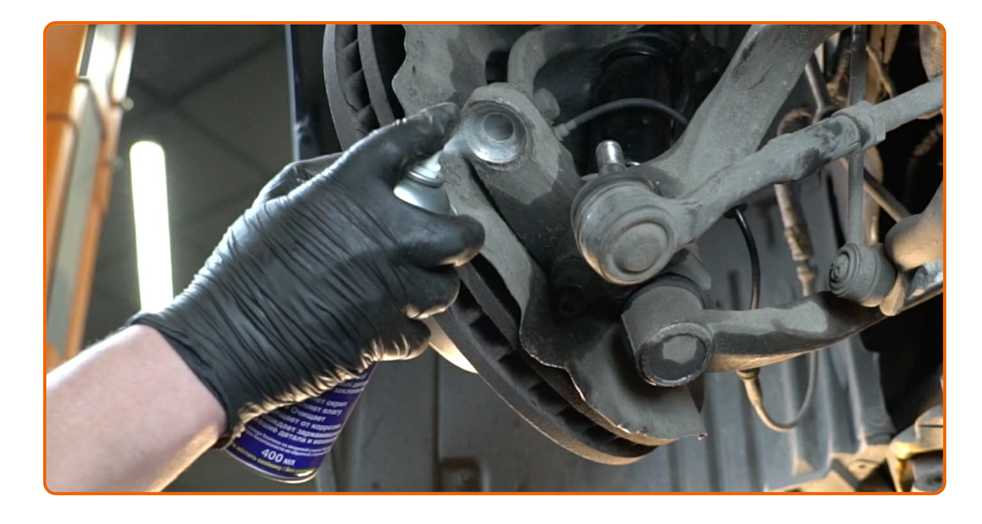
Remove the support from under the steering knuckle.

AUTODOC recommends:

- BMW E60 – Do not lower the transmission jack sharply to avoid damaging components and mechanisms of the car.



77



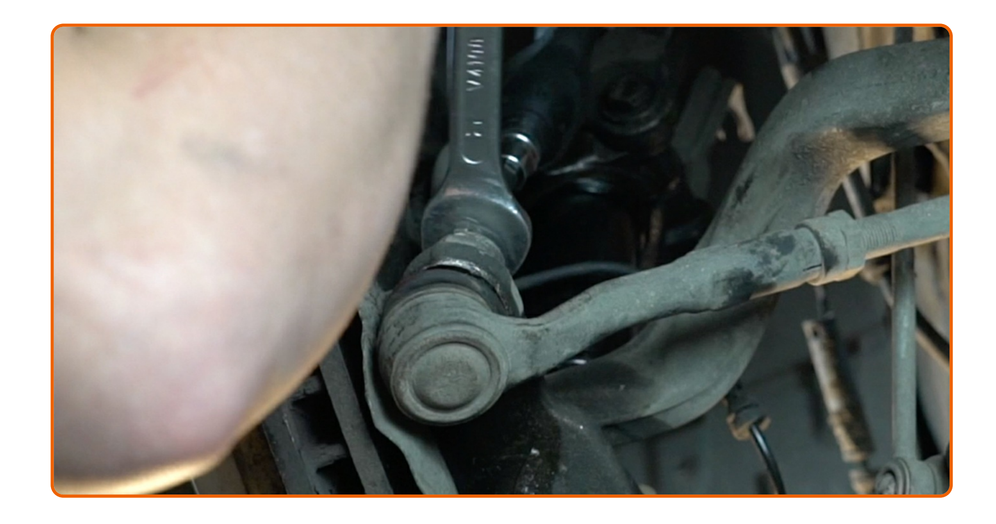
Clean the mounting seats of the tie rod end. Use a wire brush. Use WD-40 spray.

78



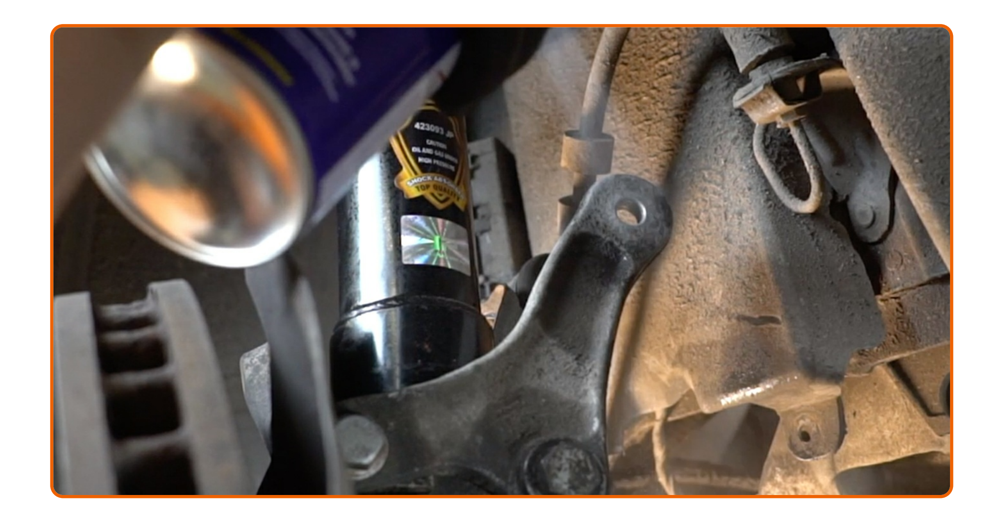
Connect the tie rod end to the steering knuckle.

79



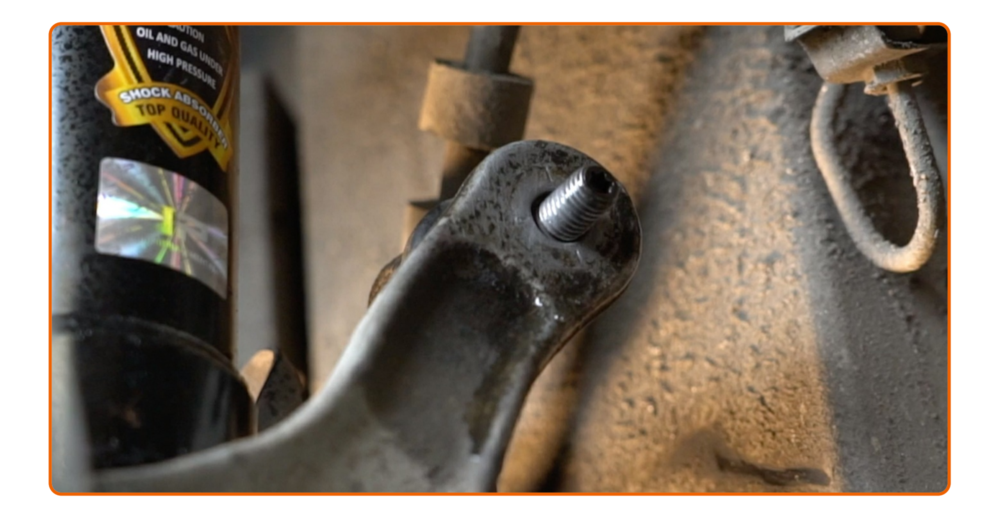
Screw on the fastening nut that connects the tie rod end to the steering knuckle. Use a combination spanner #21. Use Torx T40. Use a ratchet wrench.

80



Clean the mounting seats of the stabiliser link. Use a wire brush. Use WD-40 spray.

81



Install the transverse stabilizer link.

82



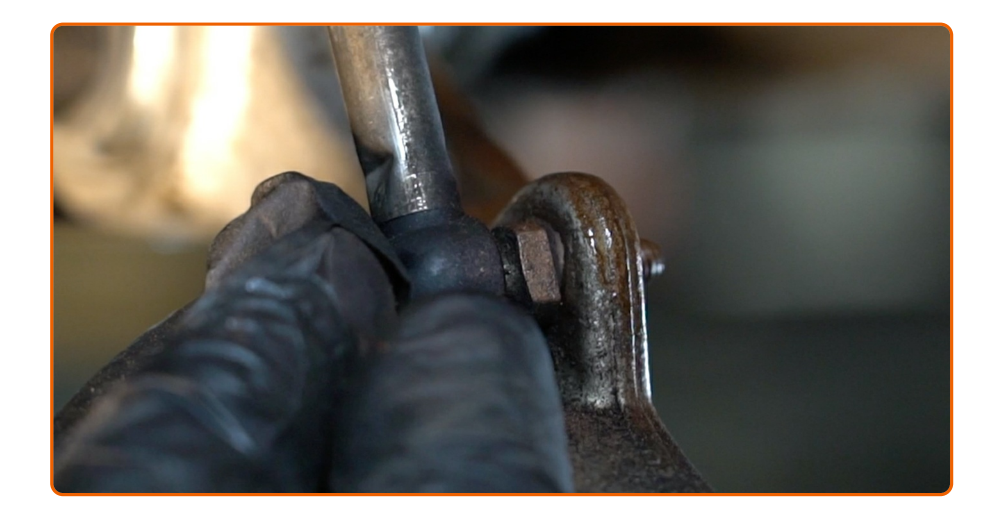
Tighten the stabiliser link fastener. Use a combination spanner #16. Use Torx T30. Use a ratchet wrench.

83



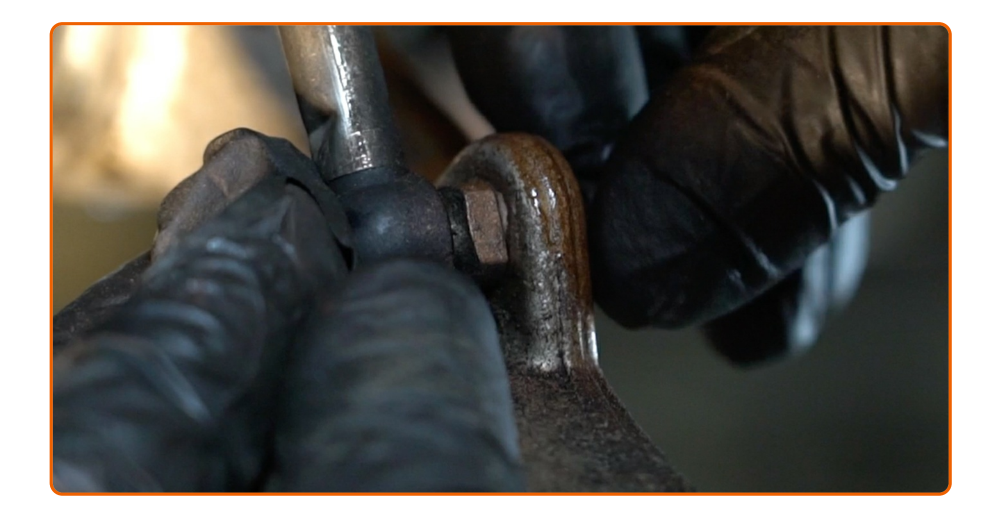
Connect the ABS sensor wiring.

84



Reconnect the headlight levelling sensor.

85



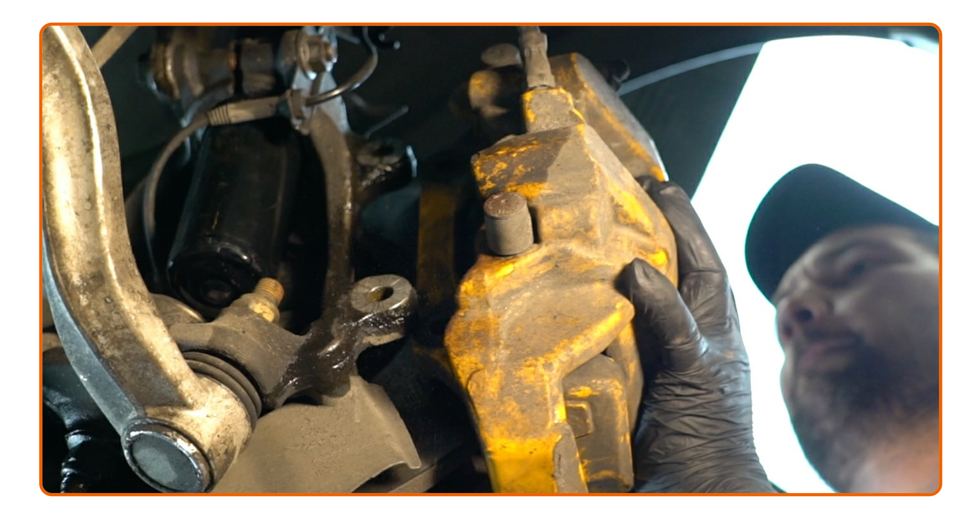
Screw in the fasteners of the headlight levelling sensor. Use a combination spanner #10.

86



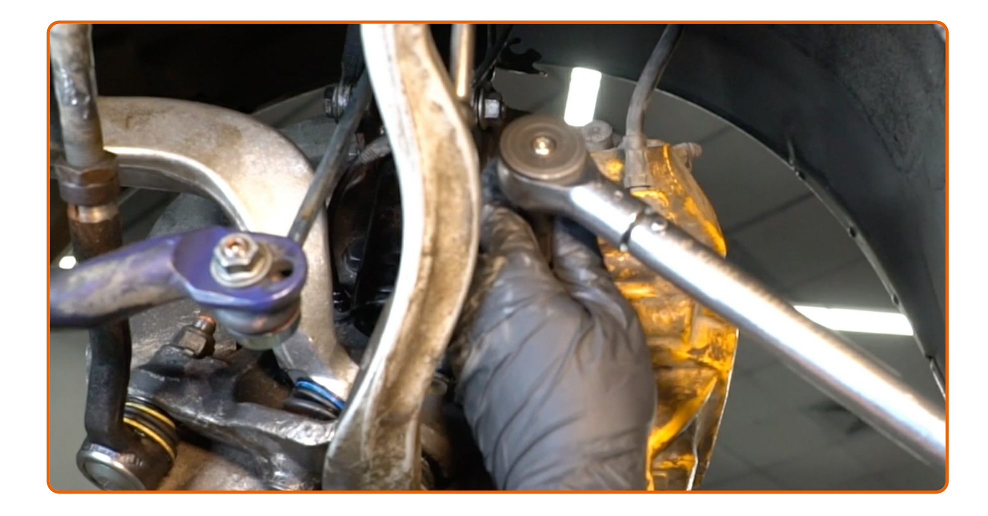
Clean the mounting seats of the caliper and its bracket. Use a wire brush. Use WD-40 spray.

87



Install the brake caliper together with its bracket.

88



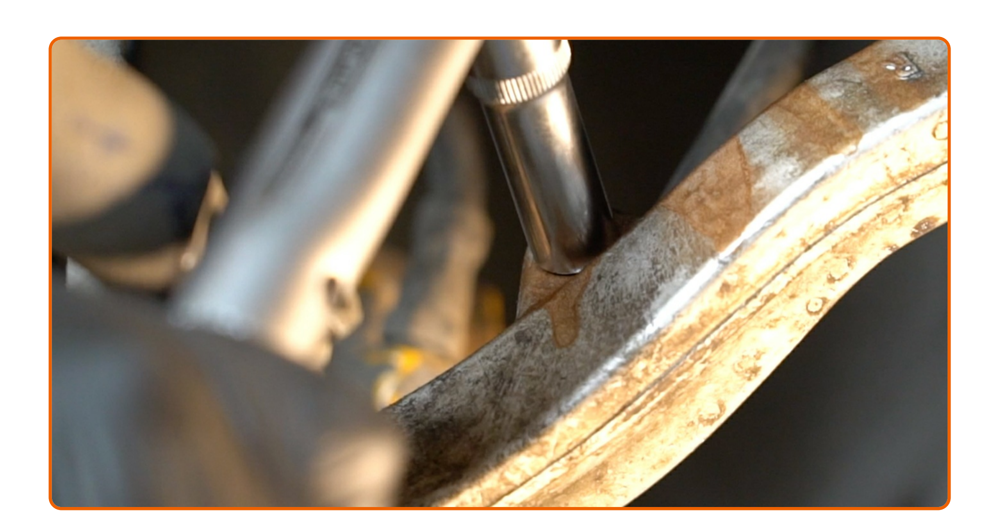
Tighten the brake caliper bracket. Use a drive socket #18. Use a torque wrench. Tighten it to 110 Nm torque.

89



Fasten the brake hose on the strut.

90



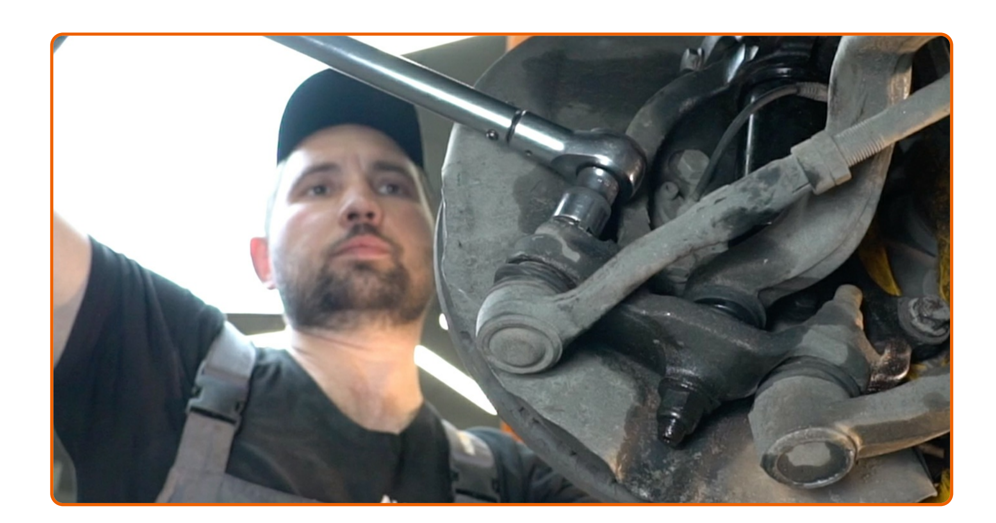
Tighten the fasteners of the headlight levelling sensor. Use a drive socket #10. Use a torque wrench. Tighten it to 7 Nm torque.

91



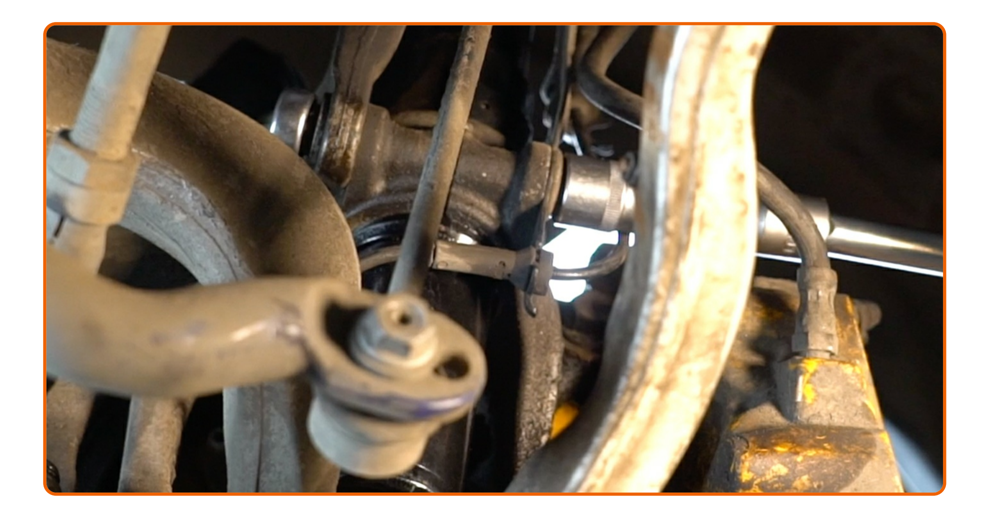
Tighten the fastener connecting the stabilizer link to the shock strut. Use a drive socket #16. Use a torque wrench. Tighten it to 65 Nm torque.

92



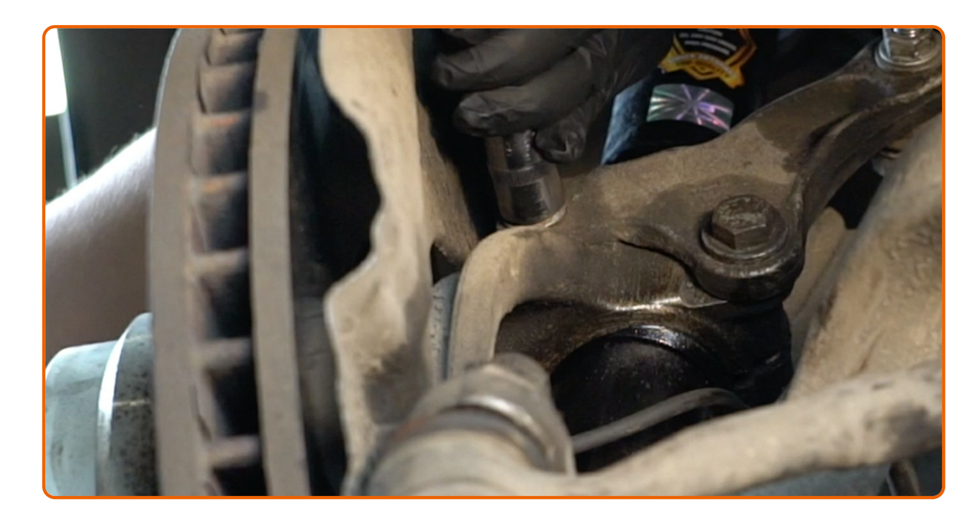
Tighten the fastening nut connecting the tie rod end to the steering knuckle. Use a drive socket #21. Use a torque wrench. Tighten it to 80 nm torque.

93



Tighten the lower fasteners connecting the shock strut to the steering knuckle. Use a drive socket #16. Use a drive socket #18. Use a torque wrench. Tighten it to 75 Nm torque.

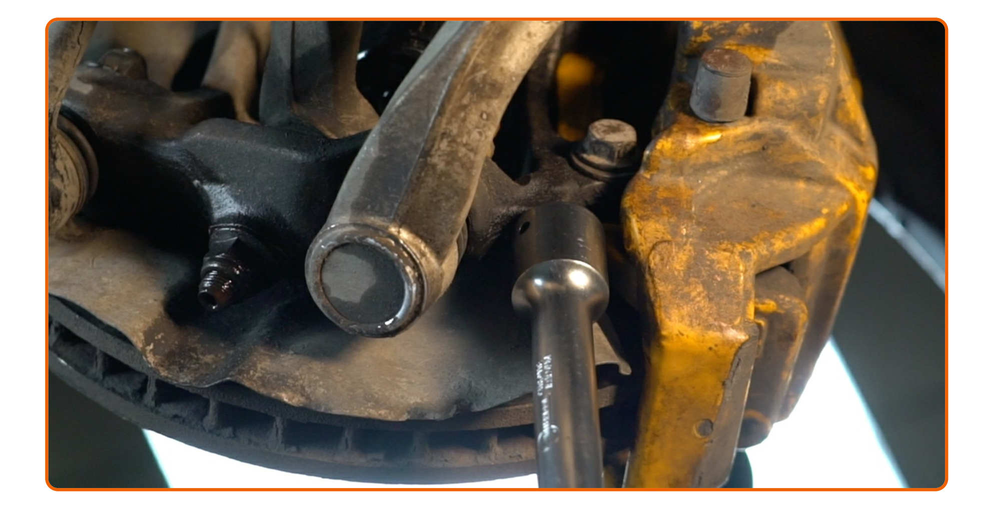
94



Tighten the fastener of the stabiliser link bracket. Use a drive socket #16. Use a torque wrench. Tighten it to 50 Nm torque.

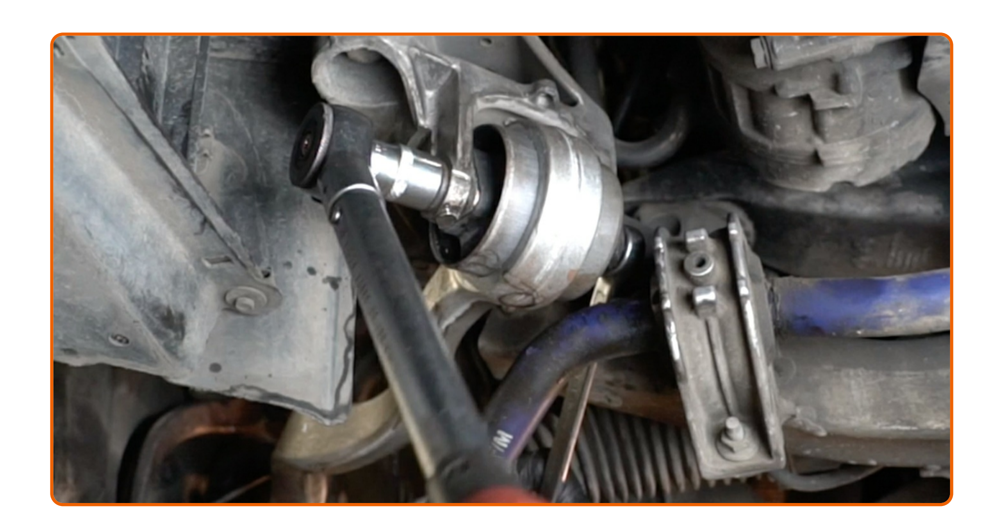


95



Prop up the steering knuckle. Use a hydraulic transmission jack.

96



Tighten the front fastener connecting the control arm to the subframe. Use a combination spanner #18. Use a drive socket #18. Use a torque wrench. Tighten it to 80 Nm torque.

97



Tighten the rear fastener connecting the arm to the body subframe. Use a combination spanner #18. Use a drive socket #18. Use a torque wrench. Tighten it to 80 Nm torque.

98

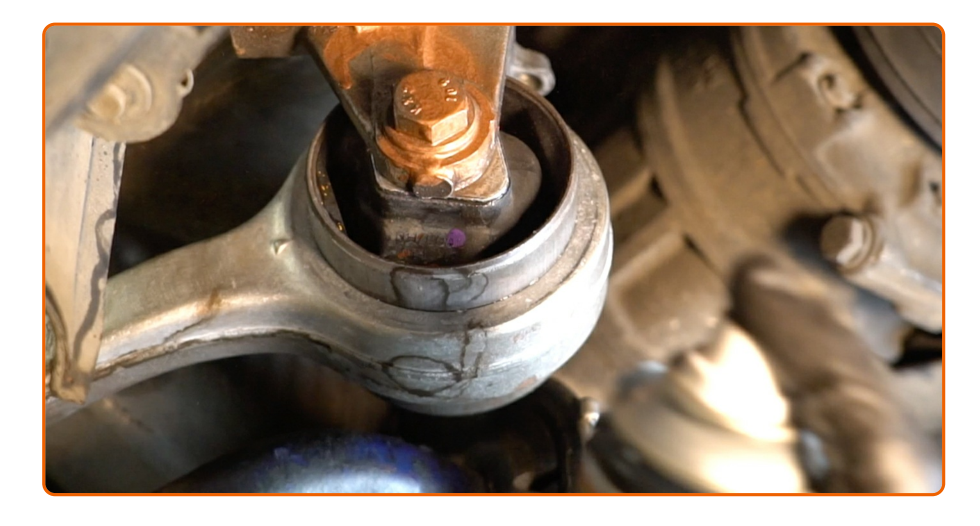


Remove the support from under the steering knuckle.

Replacement: coil springs – BMW E60. AUTODOC experts recommend:

- Lower the hydraulic transmission jack smoothly, without jerks, to avoid damaging assemblies and mechanisms.

99



Treat all joints of the arm. Treat the shock strut fasteners. Use copper grease.

100



Clean the wheel rim mounting seat. Use a wire brush.

101



Treat the surface where the brake disc contacts the wheel rim. Use copper grease.

102

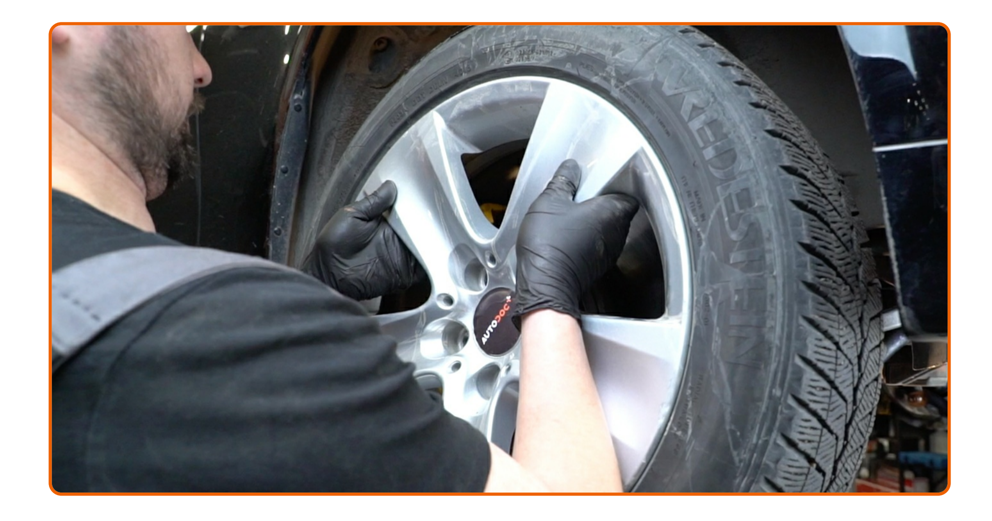


Clean the brake disk surface. Use a brake cleaner.

AUTODOC recommends:

- Replacement: coil springs – BMW E60. After applying the spray, wait a few minutes.

103



Install the wheel.

Replacement: coil springs – BMW E60. Tip from AUTODOC experts:

- To avoid injury, hold up the wheel when screwing in the fastening bolts.

104



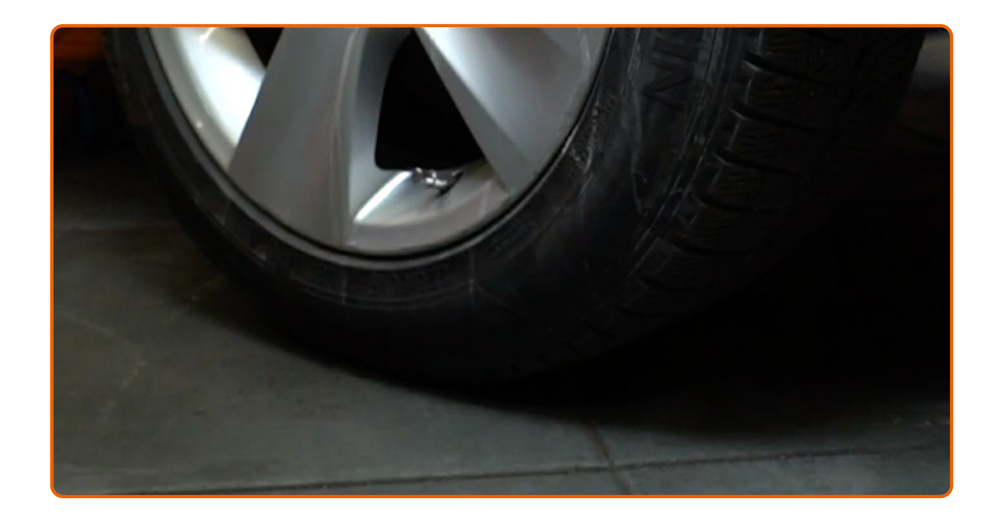
Screw in the wheel bolts. Use wheel impact socket #17.

105



Lower the car and working in a cross order, tighten the wheel bolts. Use wheel impact socket #17. Use a torque wrench. Tighten it to 120 Nm torque.

106



Remove the jacks and chocks.



107



Tighten the upper fastener of the shock absorber strut mount. Use a drive socket #13. Use a torque wrench. Tighten it to 38 Nm torque.

108



Treat the fasteners of the shock strut mount. Use copper grease.

109



Install the protective cap onto the shock absorber strut mount.

110



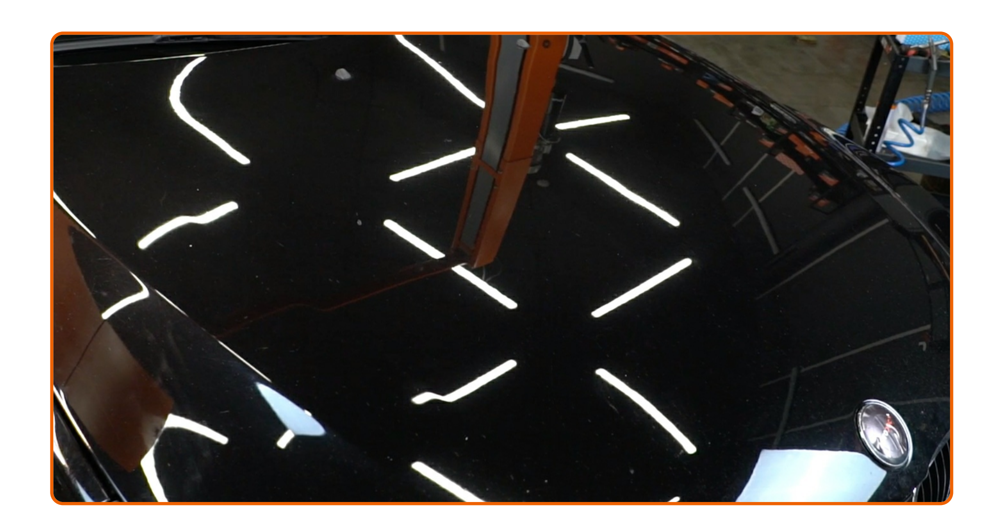
Screw in the fasteners of the suspension strut mount cover. Use a Phillips screwdriver.

111



Remove the fender protection cover.

112



Close the hood.

DID YOU FIND THESE INSTRUCTIONS HELPFUL?

YES

NO

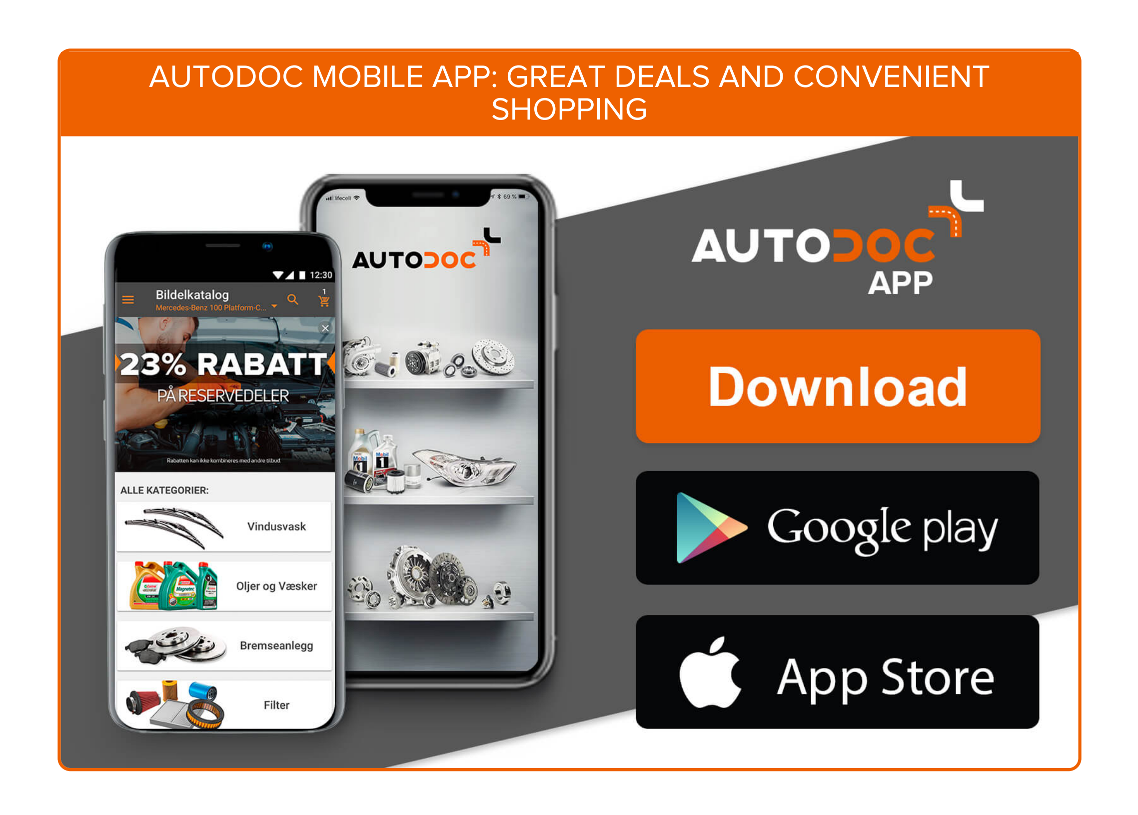


BECOME A MEMBER OF AUTODOC CLUB!

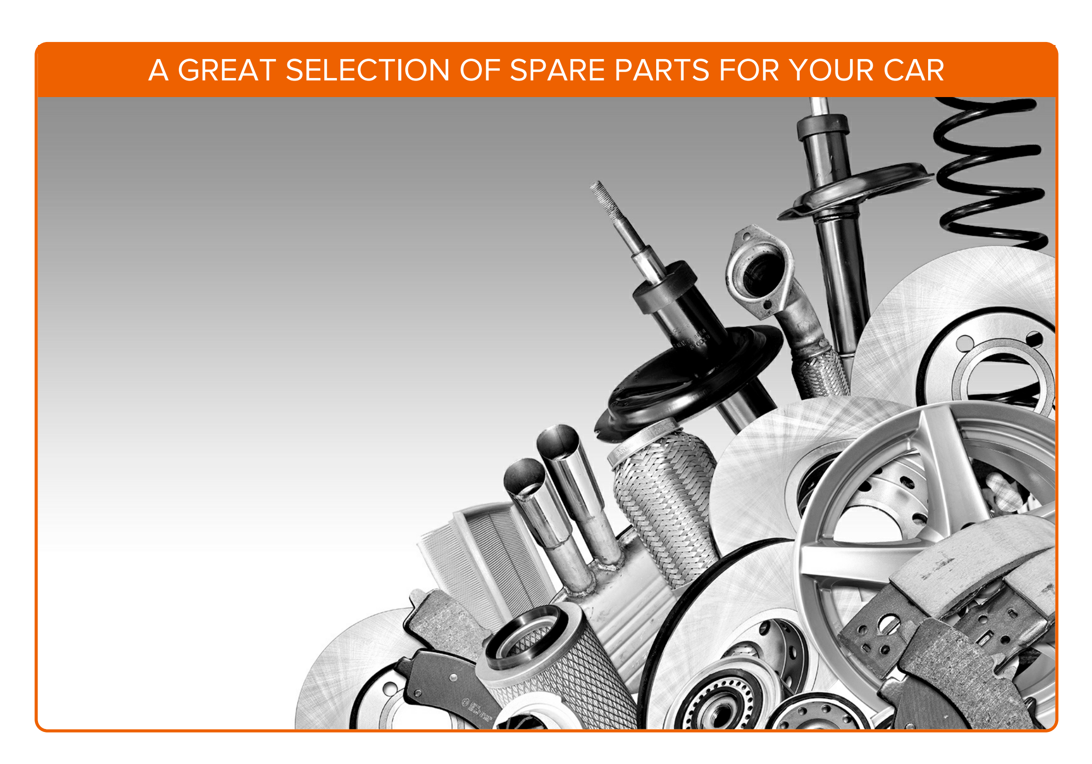


AUTODOC — TOP QUALITY AND AFFORDABLE CAR PARTS ONLINE

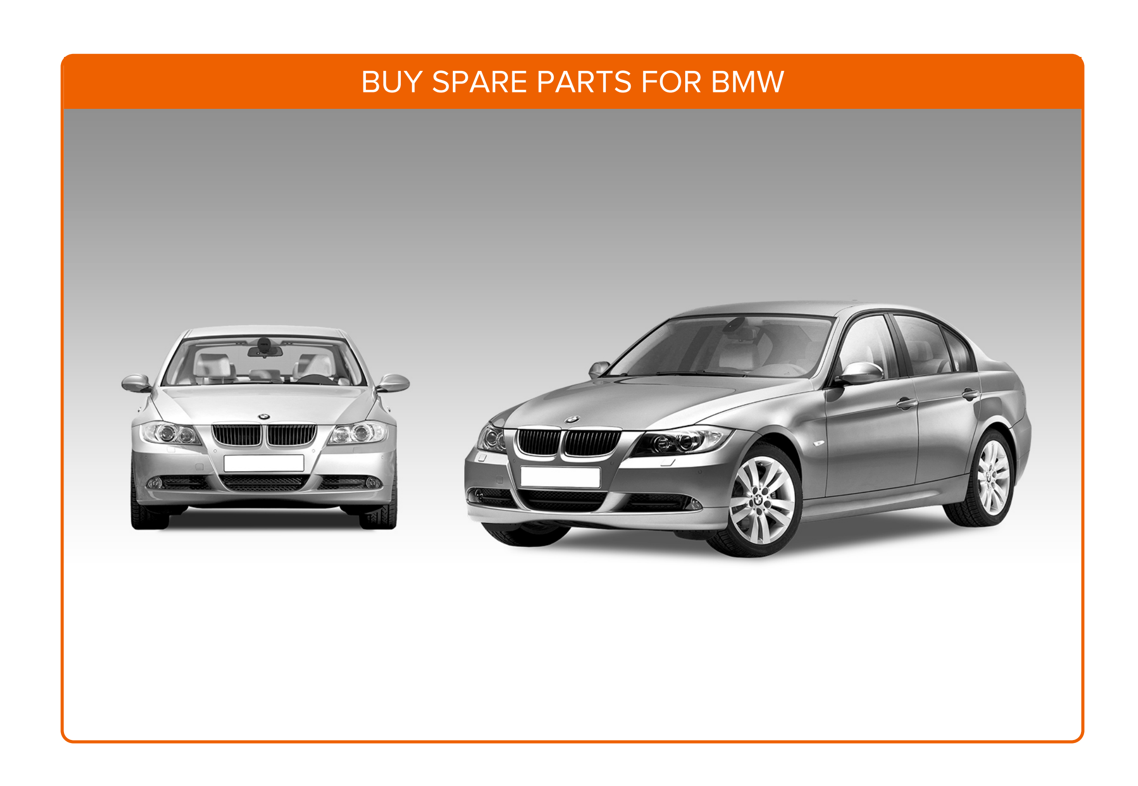
AUTODOC MOBILE APP: GREAT DEALS AND CONVENIENT SHOPPING



A GREAT SELECTION OF SPARE PARTS FOR YOUR CAR

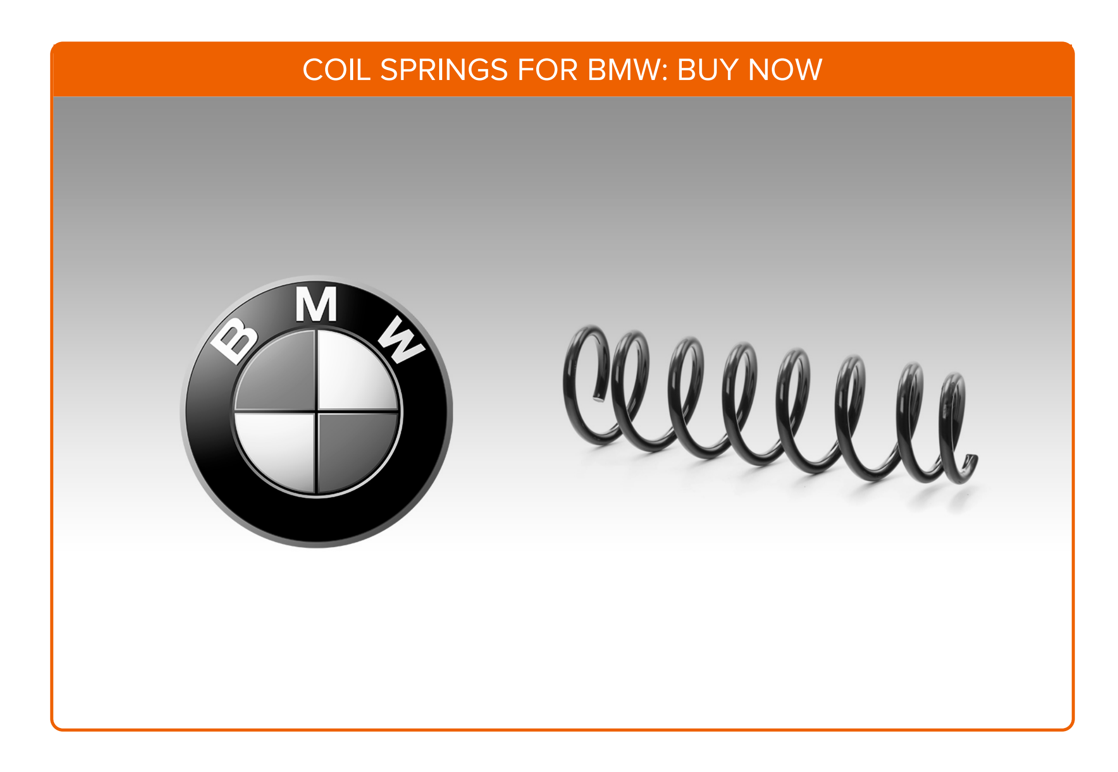



AUTODOC

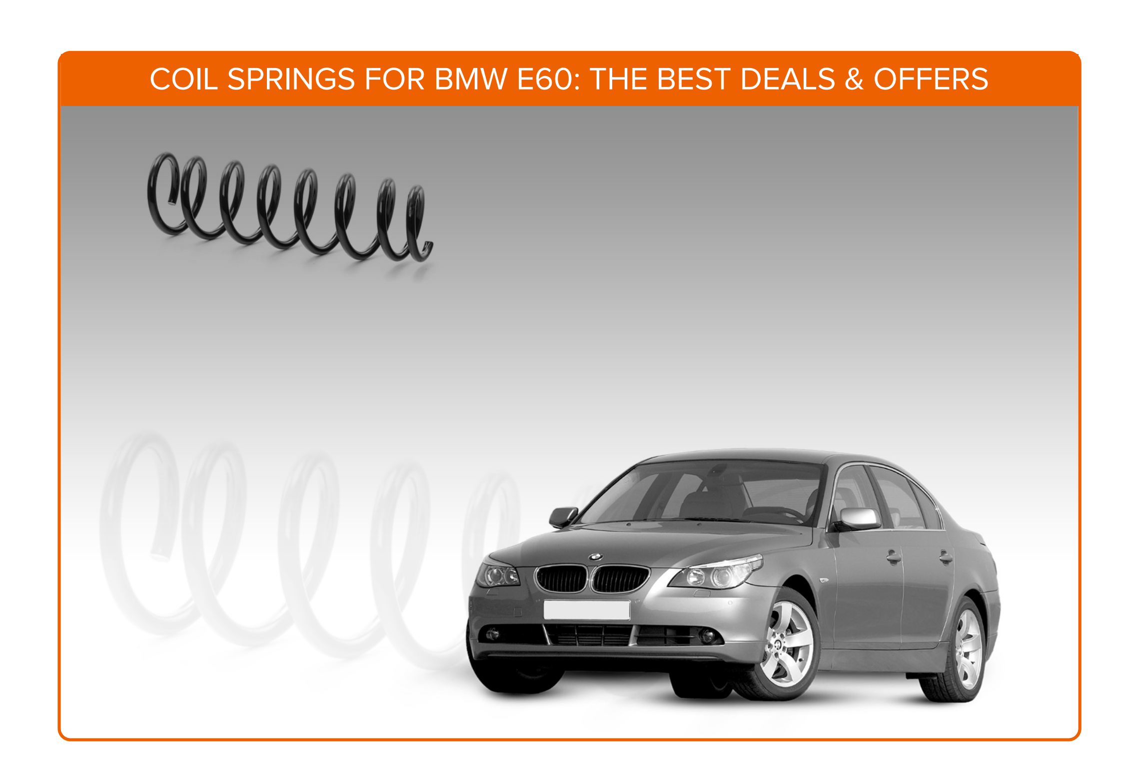

BUY SPARE PARTS FOR BMW


COIL SPRINGS: A WIDE SELECTION


CHOOSE CAR PARTS FOR BMW E60


COIL SPRINGS FOR BMW: BUY NOW
BMW





Disclaimer:

The document contains only general recommendations that may be useful for you when you perform repair or replacement work. AutoDoc shall not be liable for any loss, injury, damage of property occurring in the repair or replacement process due to incorrect use or misinterpretation of the provided information.

AutoDoc shall not be liable for any possible mistakes and uncertainties in this guide. The information provided is for information purposes only and cannot replace advice from specialists.

AutoDoc shall not be liable for incorrect or hazardous usage of equipment, tools and car parts. AutoDoc strongly recommends to be careful and observe the safety rules when performing repair or replacement works. Remember: usage of low quality auto parts does not guarantee you the appropriate level of road safety.